



**UNIVERSITY OF PADUA**

**Department of Land, Environment, Agriculture and Forestry**

**Mediterranean Forestry and Natural Resources Management (MEDFOR)**

**Forests for People, People for Forests**

Studying the importance of Jordan's public forests for citizens' wellbeing and the potential of engaging Syrian refugees in forestry projects

**Supervisor**

**Professor Laura Secco**

**Submitted by: Farah Tell**

**Student number: 1143836**

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## **Abstract**

Public forests and other green spaces play a major role in people's wellbeing. They have significant impacts on communities' physical and psychological health and they provide important spaces for social integration. Many studies are carried out around the world to assess the importance of public forests for citizens' wellbeing. However, there is a gap in which developing countries are not covered. Jordan is taken as a focus for this study, where forest cover forms only 1% of the country's total area, not enough public spaces are provided for the community's recreational needs, and where high rates of population growth have been witnessed throughout the past few decades due to receiving large numbers of refugees from neighboring countries, among whom, Syrian refugees, who form 14% of Jordan's total population. Syrian refugees in Jordan live in marginalized neighborhoods or in refugee camps where they face many environmental, economic, and social problems, suffer from post-traumatic stress disorders, and do not have access to green spaces in the country.

This study aims at assessing the importance of public forests for citizens' wellbeing in Jordan while focusing on Syrian refugees as a marginalized group that needs to access to green spaces. It also explores the spatial potential for engaging Syrian refugees in greening and forestry projects. The study finds that the few public forests in Jordan are highly appreciated by citizens and are considered to be essential elements in their wellbeing. It also stresses on the fact that Syrian refugees do not equally benefit from public forests and in most cases do not have equal access to public green spaces. The study also shows an absence of significant community engagement activities and that if carried out, Syrian refugees are marginalized and not taken into consideration. Moreover, the study presents a spatial potential for future engagement projects that is presented on four different spatial scales ranging from large scale reforestation projects to small scale roof farming activities.

**Keywords:** Forests, Public space, Community, Refugees, Public health, Social integration, Engagement.

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## **Chapter 1: About the study**

### **1.1. Introduction:**

Forests and other green spaces have been proven to play a major role in citizens' wellbeing and public health. They provide important spaces for leisure, exercise, social interaction, as well as mental and psychological rehabilitation. While many studies about this topic have been carried out in different parts of the world, there seems to be a gap in which less developed countries are not taken into consideration. Jordan is an example of those countries, despite the fact that it is a significant country where this issue needs to be highlighted; Jordan's forest area covers only 1% of the country's total area, those forests are usually mismanaged, abandoned, or abused, there are not enough green spaces that are open to the public, and there has been a sudden high rate of population growth due to receiving large numbers of refugees fleeing war from neighboring countries.

Looking into the relationships between those aspects of Jordan, it is important to mention that although refugees form a significant part of the total population, they are not a significant user group of public forests in Jordanian cities, and in most cases, they are not included in public events and activities that are related to forests or green parks. Taking Syrian refugees as a focus group, a large percentage of them live in marginalized neighborhoods in Jordanian cities, while the rest live in refugee camps, where they face many environmental, economical, and social problems, suffer from war trauma and psychological issues, and do not have access to green spaces in the country.

This project aims at studying the importance of public forests for citizens' wellbeing in Jordan, while highlighting the need of Syrian refugees to have access to these spaces. It also looks into the potential of engaging Syrian refugees in greening and forestry projects and using refugees' skills to create common green areas that would provide spaces for community engagement, help connecting local communities to refugees, and promote refugees' psychological rehabilitation. By this study, I aim at forming the first milestone on which future projects can be built, with the hope to influence decision makers to consider a reform in related policies.

### **1.2. Problem statement:**

While there are hundreds of studies that look into the link between natural areas and public wellbeing, they seem to be focused on the western world, more specifically, on developed countries. By a simple online research, it can be clearly noticed that there is a gap in which developing countries are not yet covered in such studies. Moreover, while there are some studies carried out in some developing tropical countries, there are no published studies about the Arab world for example. This might be explained by

the low percentage of forest cover due to climatic conditions in the Arab world. However, given this fact, it is important to point out that these low percentages of forest cover in fact make the few forest patches very important for Arab countries and their citizens from both environmental and social aspects. This research takes Jordan as a case-study, where a lack of public spaces and an increase in the population have been documented, which makes the very few forests important spaces for citizens' wellbeing. Moreover, Syrian refugees form a significant percentage of the population in Jordan but a large number of refugees do not have access to forests or other green spaces as they live in marginalized neighborhoods or in deserted refugee camps, where they suffer from harsh living conditions and post-traumatic stress disorders. Again within this context, several studies prove that access to green spaces have a positive role in the rehabilitation of individuals who suffer from similar difficulties. However, no studies have been carried out in Jordan so far to consider Syrian refugees and to look into their needs to have access to green spaces.

### 1.3.Objectives:

The aim of this project is to explore the role of public forests in citizens' wellbeing in Jordan with a focus on Syrian refugees as a minority group that needs to access to green spaces. The study generally aims at forming a first milestone on which future projects can be built with the hope of stimulating policy reforms regarding this issue. More specifically, the objectives of the project are to:

- Analyze the importance of Jordan's public forests for citizens and their significance in citizens' personal lives.
- Highlight the need of Syrian refugees in Jordan to have access to green spaces.
- Look into the spatial potential and possible projects for engaging Syrian refugees in greening projects in Jordan.
- Formulate relevant policy recommendations that tackle the issues raised.

## **Chapter 2: Background: People and forests around the world**

### 2.1. Nature and psychological health:

Throughout the scientific history, natural areas have been proven to have positive impacts on the environmental quality and the economy of cities. More recently, research has focused on the social effect of natural areas and their importance for citizen's physical, mental, and emotional wellbeing. Many studies carried out in different parts of the world have shown that spending time in a forest or any green area reflects positively not only on individuals, but also on a community as a whole.

A research project, titled Green Public Health - Benefits of Woodlands on Human Health and Wellbeing, was carried out in 2014 by the Medical University of Vienna, University of Natural resources and Life Science in Vienna, and the Austrian Research Center for Forests. It highlighted the impacts of forests on restoration, recovery from stress, and on social and therapeutic interventions. The project looked into around 200 publications mainly from western countries and East Asia. In general, it found that time spent in forests helps with mental healing in a way that it increases positive emotions, decreases negative emotions, and helps coping with experienced stressors. With regards to physiological stress indicators, the study found positive correlation between time spent in forests and the prevention of stress related diseases and quicker recovery from illness (Cervinka et al., 2014).

Another study that was carried out in 2015 by a team at Stanford University in the United States aimed at proving the positive effect of nature on mental wellbeing in contrast to urban settings. This was done by a controlled experiment where participants were asked to take 90 minute walks through a natural environment with oak trees and shrubs, while other participants had same duration walks in high traffic urban settings. Participants heart respiration rates and brain activities were measured before and after the walks. The brain scan results of the participants who were asked to walk through natural area showed decreased activity in the subgenual prefrontal cortex, a brain region that focuses on negative emotions, proving that spending time in a natural setting decreases negative brain activities, thus reducing depression and anxiety. The study also points out that compared to people who live in rural areas, city dwellers have been proven to have a 20% higher risk of anxiety disorders and 40% higher risk of mood disorders. (Bratman et al., 2015).

Within the field of nature and public health, the concept of “nature based rehabilitation” or “nature based therapy” appears. This is defined as facilitated interactions with natural landscapes and natural elements to promote improvements in human health, including physical, social, emotional and mental wellbeing. A doctoral thesis carried out at the Swedish University of Agricultural Sciences, focused on the Alnarp Rehabilitation Garden in Sweden as a case-study to look into the role of nature in the rehabilitation of individuals with stress-related mental disorders. In the study, participants highlighted a number of “supportive environments”, which are specific areas throughout the garden where they felt mostly supported their rehabilitation process. These supportive areas were then analyzed according to interviews with the participants. The results point out that the most important qualities of these environments were sensory dimensions: nature, prospect, refuge, serene, and space. Physical features that supported the rehabilitation were shapes, textures, fragrances, sounds, structure. For example, curves and soft shapes that are found in nature were found to feel “less demanding” than strict lines and

hard surfaces. Soft colors such as lilac and pink flowers were also perceived as calming and not mentally bothering. Moreover, physical features of the supportive environments included canopies, which provided a sense of a roof, paths, providing a sense of exit or escape, and alternation in ground colors. (Pálsdóttir, 2014).

## 2.2. Forest as a specific type of natural landscapes:

Focusing on forests as a specific type of natural landscapes, the Green Public Health - Benefits of Woodlands on Human Health and Well-being project also shows that when compared to different natural environments including savannas, deserts, water landscapes and coastal areas, forests have been proven to have preferences that are as high as water landscapes and coastal areas, while desert areas and mountains scored less. This is explained by the fact that forests provide a sense of safety, supported way-finding, accessibility, easy legibility of the terrain and walkability, and also a degree of diversity and alternations, which all are essential aspects for mental health (Cervinka et al., 2014).

A 2009 study about forests and psychological health in Korea confirms that although forests are not the only kind of natural landscapes that have psychological restoration effects, they do have many advantages over other natural settings. The study also presents the idea of “Forest Stimuli”; In contrast with urban stimuli, forests include low densities of human population, low levels of movements and noise, and a slow rate of change. These aspects of forests provide the users with high degrees of predictability and low degrees of ambiguity. Forests and forest elements are said to also evoke coping behaviors which contribute to psychological health. The study also presents the psychological concept of flow. This is described as a state where an action follows another action according to a user’s internal logic without the need of conscious intervention, thus promoting enjoyment, feelings of control, and momentary loss of anxiety. Throughout literature, other studies have linked forest environments to flow experiences, as they provide a sense of freedom and adventure (Shin et al., 2009).

The roots of the idea of using forests for human therapy go back to the Japanese concept of “Shinrin-yoku”, meaning Forest Bathing. This concept was developed in the 1980s by Japanese and South Korean researchers, who established a base of scientific literature and proved the health benefits of simply spending time under a canopy of a living forest. The concept of forest bathing is now an important element in the Japanese healing and health care medicine and the research today supports the establishment of forest bathing projects all over the world. The Shinrin-yoku research proves that forest bathing boosts the human immune system, reduces blood pressure, increases the ability to focus, accelerates the recovery from surgeries and other illness, and improves sleep. Moreover, beside those

physical impacts, other life qualities are affected including the overall sense of happiness, deepening of friendships, clearer intuition, and others. (“Shinrin yoku,” n.d.).

### 2.3. Forests for community integration:

Forests and other natural areas are also significant for the promotion of social integration and community interaction. Forestry and social integration can be perceived and implemented in many ways and on several scales. A 2000 publication points out that the “social” part of the social forestry concept covers different social dimensions; the social aim of social forestry can either be to reach local objectives and have local impacts, to reach social integration in decision making, management, investments and yields procedures, or to be socially configured, in a way that it is adaptable, dynamic, and responsive to local contexts (Stieglitz, 2000).

On another hand, social objectives of forestry can also integrate more direct and more focused approaches of social inclusion. Today, one of the pioneering organizations in this field is SocialForest, founded in 2014 by social entrepreneur Joachim Englert. According to Englert, the main idea behind founding his organization was his love for forests and for helping other people. As a way to integrate both passions, Englert’s early projects included direct hands-on inclusion of people in forestry. In 2000, he worked with street children in Brazil on the construction of a woodland trail. He also worked with excluded groups such as drug addicts and prisoners in Barcelona on some projects where they received training in forestry work. SocialForest was afterwards established and dedicated to carry out forest management activities that focus on training and integrating young people who face the risk of exclusion (“SocialForest,” n.d.).

Many other projects have proven that green spaces play an important role in community cohesion and social inclusion. A publication by Forest Research documents some findings of studies carried out around the world. For example, it was found that greener neighborhoods have stronger social ties and lower domestic violence and crime levels. It was also found that green parks that serve as borders between different neighborhoods do not form barriers between different communities, and in contrast, serve as mutual spaces for the interaction of different ethnic groups (Forest Research, 2010.). The Green Public Health - Benefits of Woodlands on Human Health and Well-being project also presents the idea of social forestry in a similar perspective. It mentions that this concept was earlier presented in a guide published by the Small Wood Association in 2010. It is explained as structured projects that aim at improving social and emotional skills for certain target groups, and at improving health, self-

esteem, concentration ability, as well as the integration of different participating groups. (Cervinka et al., 2014).

#### 2.4. Marginalized use groups and exclusion of minorities:

While the general definition of the social forestry concept may sound inclusive of all social groups, this in many cases is not the reality. The terms “public space” and “ecosystems services” may sound welcoming and inclusive to all groups in the community. However, in most communities, not all social groups are included in related projects or have access to forests or public space, and in some cases in some parts of the world, groups from different economic classes in communities do not benefit equally from the offered ecosystem services. For example, disabled people, elderly, families with low income and ethnic minorities can be marginalized groups who do not get to equally benefit from public forests or from ecosystem services in general. A number of studies carried out in different parts of the world have proven that minorities and socially excluded groups are under-represented in visitors to protected areas and that minority groups pay significantly less visits to natural environments (Institute for European Environmental Policy, n.d.)

In some cases, this is caused by the intentional or non-intentional marginalization of minority groups in the community. A 2013 publication titled *Marginality: Addressing the Nexus of Poverty, Exclusion, and Ecology*, focuses on the concept of Marginality and discusses the situation of people who live on the edge of economic, social, and ecological systems. The authors define marginality as the positioning of people on edges, which prevents their access to resources, assets, services and opportunities and the development of their personal capabilities. In general, the authors highlight three different dimensions to marginality: Physical distance, social distance, or institutional deficiency to inclusivity. In many cases, all those dimensions, combined, may be a crucial cause for the marginalization of community groups thus leading to a number of social problems. (Braun et al., 2013).

Focusing on the use of green areas by minorities or marginalized groups, the literature documents several projects that have been considering this issue. Those projects show an increase trend in the United States, the United Kingdom, and in some European countries, and particularly in fields that link urban design and urban planning with community development. With the aim to integrate different social groups, black and white neighborhoods for example, common public parks were created on borders of neighborhoods and offer spaces for leisure, thus promoted the integration of different social groups. While the success of such efforts is in some cases noticed and documented, other studies argue that simple leisure centers are not enough for the integration of different groups, different ethnic groups

for example. A 2010 publication addresses this topic in the United Kingdom. It argues that although newly established well equipped parks are important spaces for ethnic minorities, access to those parks does not necessarily imply social integration, and that in most cases, informal poorly maintained local gathering spaces form alternative safe havens that, to the youth of minor ethnic groups, are “far from disciplinary structures of the external world.” (Ravenscroft et al., 2010).

This brings out some arguments: is the provision of public spaces enough for community integration? Do minorities choose to be marginalized from such spaces? What efforts can be added in the ecosystem management or forestry fields in order to promote successful social integration that can be proven and seen on real grounds?

Within these doubts, it is interesting to go back to the on-ground application of the Social Forestry concept. According to Englert, the founder of Social Forest, engagement is not promoted by space provision, but by the hands-on training, co-management, and taking part in the actual activities of the forests management. (“SocialForest,” n.d.).

### 2.5. Refugees as a marginalized group:

An article that is based on a social forestry project carried out in the United Kingdom, points out that among the groups who are excluded from public green spaces, “people with immigrant backgrounds” stand out (Morris & O’Brien, 2011). Another study carried out in 2009 in Germany focused on immigrants as a minority group and looked further into the relationships of immigrants and forests. It found that nearby forests played a major role in the identification process of the new home country. It also found that not only small talks, but also non-verbal communication between different users of the space facilitated the social integration process. This is explained by the fact that in contrast to urban settings, forests have less focus on cultural and individual differences and have less cultural attributes which usually are a reason for difference, such as language. The study also suggests that public natural areas offer a socially-integrative potential for minority groups including immigrants in a way that besides serving as mutual spaces for different activities and interests, they offer a strong “symbolic identification potential” and they are able to induce memories and mirror a society’s values. It was also found that green areas are an important factor for individuals and communities establishing a “sense of place” and “ownership” of the landscape (Jay & Schraml, 2009).

When it comes to linking the terms “forests” or “natural ecosystems” to “refugees” in a simple research on the web, one can sense a conception where refugees are often looked at as a threat to forests or natural areas in general. This can be tackled from angles of space territorializing for refuge, settlements in forests, non-legal consumption of wood and non-wood forest products or water resources for living needs, conflicts, demand pressure on ecological resources...etc. However, it is worth mentioning that in response to this, some international organizations have been putting efforts in addressing the demands of refugees while protecting local environments. Among those, the United Nations Refugee Agency (UNHCR) stands out. In Eastern Sudan, where millions of refugees have been living since the 1980s, UNHCR has been working on a forestation program for the past 30 years. The program was initiated in response to an environmental pressure on wood that was used for cooking and shelter, and to the harsh living conditions of refugees in the area that - back then - was bare land. With the support of ENSO, a Finnish non-governmental forestry organization, more than 19 million acres were planted with acacia, eucalyptus, and other tree species, along with lines of tens of crop species. Moreover, training and technical support projects were carried out to benefit both refugees – mainly women - and the local community. The project also focused on peace building and self-reliance, in a way that it provided a sustainable resource for fruits, medicine, seeds, shade, erosion prevention, and other services. According to staff members of the program, this project also created a sense of land ownership, belonging, and responsibility of the refugees, while still benefited the environment and the host communities. (Ringuette, 2010).

### **Chapter 3: Methodology**

#### **3.1. Desk research:**

As a first step, desk research was carried out in order to obtain a clearer idea about the scope of the study and further research needs. General secondary data was collected about Jordan’s forests, Syrian refugees in Jordan, and ongoing greening efforts. Those subjects were looked into by exploring governmental sources such as official municipal or organizational reports and available quantitative data, as well as more public points of view such as articles, blogs, Facebook posts, and other online publications that reflect public opinions. Both qualitative and quantitative primary data was collected in the study.

### 3.2. Study sites:

Two forests in Jordan were taken as case-studies: Dibeen Forest Reserve, a natural forest located in the north-west of Jordan and managed by the Royal Society for the Conservation of Nature (RSCN), and Amman National Park, a smaller re-forested park located to the south of the Jordanian capital and managed by the Greater Amman Municipality (GAM). The aim of choosing these forests specifically is to have information about both an urban forest located in the capital where most of the citizens reside, and another larger scale forest in the area where most of Jordan's forests are focused. Moreover, both forests are among the most popular recreational forests in the country and are managed by known entities, which facilitate data collection for the study.

### 3.3. Interviews with forest managers:

Face to face open-ended interviews were carried out with the managers of both forests to obtain broader information about the forests' situation, main challenges, users' activities, number of visitors, community engagement projects, current and future plans for improvements...etc. As a first step, an interview was carried out with the Social Services Department of the Greater Amman Municipality, which was contacted via a phone call and gladly offered the needed support for the study and provided information about Amman's public spaces in general. From there, connections were made with the management departments of both forests: the Greater Amman Municipality managers of the national park, and the Royal Society for the Conservation of Nature. An interview was then carried out with the manager of Amman National Park. The management department of the RSCN was also contacted via a phone call and an interview with the Research Department of RSCN was facilitated, from where data about the reserve was obtained.

### 3.4. On-site questionnaires and observations:

To obtain information from the perspective of forest users, a questionnaire was distributed on-site to forest users in both forests. The questionnaire consisted of a combination of open ended and closed ended questions. A total of 19 questions (2 of them containing 8 and 9 sub-questions) falling under the following categories were asked: use of the forest, motivation for forest visit, perception about the forest, perception about Jordan's forests in general, as well as a section for personal demographic information. This questionnaire aimed at providing a more personal user oriented input about the public forests. This questionnaire was prepared and distributed in Arabic language, and the results were then translated into English. A copy of the translated questionnaire is added at the end of this report in Appendix 1.

Convenience sampling design was used, and questionnaires were distributed to participants from both genders, different nationalities, and different age groups (above 15 years). For convenience issues, children under 15 years old were not asked to fill in questionnaires. Questions about users' satisfaction about forest issues were not asked specifically about the two study sites since it is not relevant to the aim of the study. Rather, some questions were asked to look into the citizen's satisfaction about Jordan's forests in general. A total number of 289 questionnaires were filled. However, 42 questionnaires had to be disregarded because of incomplete answers or skipping more than half of the questions. Therefore, the total number of filled questionnaires that were considered for the results is 247; 126 from Dibeen, and 121 from Amman.

Qualitative observations around the two sites were also carried out to document the general situation of both forests: activities taking place, difference of use or behavior in the space by different age groups, possible interaction of different user groups...etc.

On-site questionnaires and observations were carried out in May, 2017, which is usually one of the most active months for recreational activities in Jordan, after cold winters and before very hot dry summers. A total number of 16 data collection days (8 days in Amman / 8 days in Dibeen) were chosen randomly to include both weekends and weekdays. Interviews and observations were done during different times of the day between 9:00 am - 7:00 pm. On-site data collection was supported by two volunteers who have interests in the fields of urban planning and community development.

### 3.5. Interviews with Syrian refugees:

The study also zooms in to Syrian refugees as a marginalized minority group that needs access to forests. Due to complicated and lengthy procedures to obtain entry permits to the refugee camps, interviews were carried out with refugee families who have lived in refugees camps for some time before moving to Jordanian cities. Open ended interviews were carried out via Facebook Messenger video calls with 19 Syrian individuals. However, 4 interviews were disregarded due to hesitation of interviewees to share valuable information due to the politically sensitive issue of refugees in Jordan. As a result, interviews with 15 Syrian individuals from 13 families were used for the study. Snowball sampling is used for these interviews, where some Syrian individuals suggest acquaintances who were willing to take part in the study and openly share relevant information. Questions for these interviews were prepared and interviews were carried out in Arabic language and the results were then translated into English. A list of the translated interview questions is added at the end of the report as Appendix 2.

### 3.6. Additional supportive interviews:

Additional interviews were carried out to obtain supportive information regarding Syrian refugees in Jordan, ongoing greening projects in Jordan, and history of Jordan's forests. Those interviews include three casual conversations with random elderly individuals who shared their memories about Jordan's forests. Interviews were also carried out with the founder of Green Amman 2020 project as well as the Arab Group for the Protection of Nature to obtain information about their general scope of work and engagement activities. Moreover, an interview was carried out with a former staff member of Save the Children Jordan who provided supportive information about Syrian refugees, refugee camps, and rehabilitation projects.

## **Chapter 4: Jordan as a case-study: people, space, and forests**

### 4.1. Jordan: a brief overview:

Jordan, officially known as the Hashemite Kingdom of Jordan, is a relatively small country located in Western Asia. Jordan covers an area of 89,342 square kilometers, and it shares borders with Saudi Arabia, Iraq, Syria, Palestine, and with the red sea from the extreme south-west corner (see Figure 1). Jordan has a strategic location on the crossroads between Asia, Africa, and Europe, and it has by far maintained a level of political stability and safety compared to neighboring countries. It therefore has been booming with international and local investments and tourism programs for the past few decades. Amman is the capital of Jordan and the country's economic, political, and cultural center.

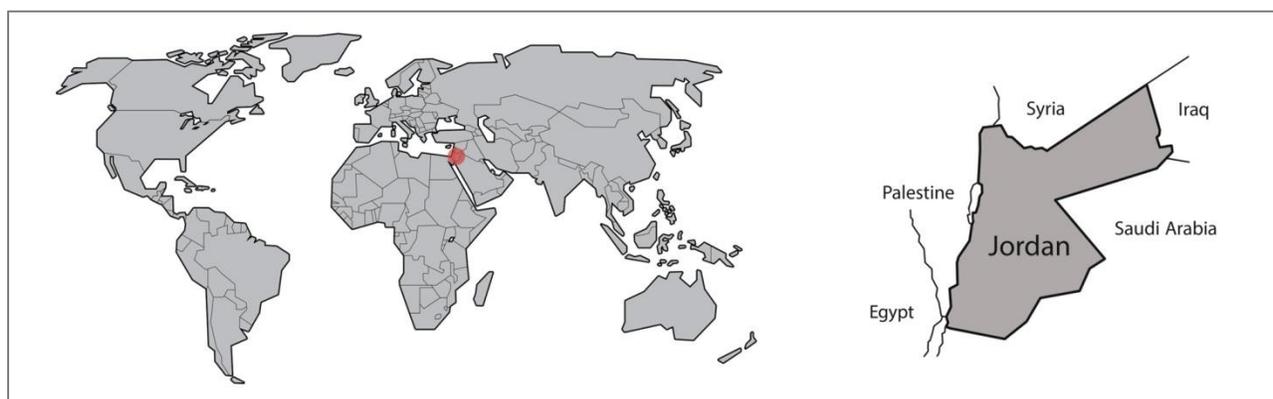


Figure 1: maps showing location of Jordan and Jordan's borders

#### 4.2. Climate and forest cover:

Jordan has a unique geographical formation and varied terrain, thus has a unique climate and diverse ecosystems including deserts, scarp and highlands, shrub-lands, sub-tropical areas, and freshwater areas. The northern part of the country where most of the highly populated cities are located has a Mediterranean climate, while the southern part of the country is an arid desert. The country's average elevation is 812 meters above sea level. In general, it has cold, relatively dry winters and falls, warm springs, and long hot dry summers. Since the northern part of the country has a Mediterranean climate, it is the area where most of the forests are located (see Figure 2). According to the Jordanian Ministry of Agriculture, Jordan's forest cover forms only around 1% of the country's total area which is around 87,000 hectares. Out of these, around 52% is natural forests and 48% man-made forests or reforested areas. Jordan's forests are not used for any production purposes, so the main use of the forests is recreational. When it comes to flora and fauna, the presence of around 2500 plant species, 180 animal species, and 420 bird species have been documented in Jordan. And when it comes to forests, the main forest trees are Pine, evergreen and deciduous Oak, Arbutus, Carob, Cypress and Pistachio.



Figure 2: forests in northern Jordan

As many other developing countries, Jordan's forests have been facing a quick level of degradation and other threats. According to data published by Jordanian Ministry of Agriculture, many factors contribute to the degradation of Jordanian forests. These include overgrazing, littering, overexploitation and forest clearing, inappropriate management of soil and water resources, illegal fuel wood harvesting, inadequate forest management and fire control, intentional fires, as well as land conversion to agriculture or urban areas (See Figure 3). Other main issues include weak law enforcement and failure to take legal action against forest abuse, lack of community and stakeholder's engagement,

insufficient budget allocation, as well as the lack of awareness and environmental education. Despite many efforts for the conservation of forests, a loss of almost one-third of natural forests had been documented during the past 35 years, with an average of 1.6% of forests per year, leaving the very small percentage of forests in Jordan under high pressures and many threats. (Ministry of Agriculture of Jordan, n.d.)



Figure 3: images taken in 2015 at Wasfi al-Tal forest in Amman showing littering and fires

#### 4.3. Population growth trends:

Based on the latest United Nations Estimates, as of June 2017, the population of Jordan is 7, 871,792. Population density is 89 per square kilometers. 84.4% of the population lives in urban areas, mainly focused in the north-western part of the country. While this data refers to registered Jordanian citizens and Jordanians from Palestinian origins, other official resources confirm a number of almost 10 million capita as a total population number, out of which, around 2.9 million - around 30% - are non-Jordanians; 6.65% of the total population in Jordan are Palestinians with no Jordanian identification numbers (not registered as Jordanians), 6.68% Egyptian workers, 14% Syrians, 1.3% Iraqis, 0.33% Yemenis, and 0.24% Libyans. According to the Department of Statistics in Jordan, the population of Jordan has increased 10 times during the past 55 years, and has doubled during the last decade due to receiving a high number of refugees. This rapid increase has left Jordan's resources under pressure and under alarming needs of interventions and local and international efforts to provide a good life quality to both refugees and Jordanians as well as to protect the country's resources.

#### 4.4. Public space – focusing on Amman:

For the past few decades, Jordan has been booming with international and local economic investments especially in the Capital, Amman. This projects an image of development on local and international scales. However, these investments do not seem to be inclusive to all elements that are needed for the

development of the country and its people; investments are in most cases focused on the business and trading fields, and in fact attract a certain social class of the Jordanian community: the high end families. For example, malls, hotels, private companies, amusement centers, sports clubs, resort, restaurants and pubs...etc. have been multiplying all over the country. Only a limited number of the community members can afford the access fees to such facilities, which leaves families with lower income and refugees in desperate needs for recreational facilities or simply: public spaces.

When it comes to Amman, according to data obtained from Greater Amman Municipality, there is a total number of 166 public parks and services distributed among 22 residential zones in the city and are open to the use of the public (Greater Amman Municipality, n.d.). Among those, around 45 are social center and public libraries that may or may not contain small gardens as part of the facilities. Also, while all of them are added as public parks, a number of them are not totally open for the public use and require a small amount of entrance fees or are not anymore open to the public, such as Al-Amir Hashem Bird Park, Zaha Center, Wasfi Al Tal Museum, and others. This relatively high number of public parks and centers may sound good enough and seem to provide enough spaces for recreational activities. However, taking a closer look at these parks, their areas, facilities, and conditions, the “good enough” thought unfortunately vanishes. In some cases, an empty unequipped and unfenced piece of land is considered to be a park. In other cases, this empty piece of land has turned into a dump yard for the debris of neighboring construction sites or for the garbage and litter of the neighborhood’s residential buildings. While many of the parks include facilities like play areas, benches and restrooms, due to absence of maintenance and upkeep, almost all of the equipment and playing facilities end up vandalized, broken, or stolen, giving the park an overall sense of chaos, uncleanliness, and insecurity. Figure 4 displays a combination of images of some public parks, provided by the Social Services Department.



Figure 4: spaces officially registered as parks. Retrieved from the Greater Amman Municipality Social Services Department

In an effort to document the status of these parks, the Social Services Department of the Greater Amman Municipality has carried out activities to analyze the conditions of the public parks and also public libraries and social centers. Notes regarding each park have been documented. Among these notes are: no clear boundaries or borders between park and vehicular streets, presence of abandoned buildings or electric suppliers in the parks, illegal use of the parks for private events like weddings, absence of fences, seating equipment, playing equipment, lighting poles, or guiding and regulatory signs, no proper water drainage systems in the parks, littering and non-cleanliness, need for maintenance of water features, walls, benches, play equipment, litter bins, the need for overall rehabilitation of the parks, and others (Greater Amman Municipality, n.d.). What is even more disappointing is that fact that in most cases, parks that are located in richer neighborhoods show a better level of maintenance and upkeep by the municipality, while parks that are located in poorer more crowded neighborhoods, where they are desperately needed, do not seem to ever be maintained or rehabilitated. Also, despite the fact that the public parks are registered as “gardens”, in most cases, only very small parts of the park are planted, and the majority of the area is tiled or covered with hardscapes. In other cases, the planted green areas are never irrigated or maintained, turning them into spaces of bare soil or unmaintained wild vegetation.

When it comes to the area of the parks, the Social Services Department of the Greater Amman Municipality also documented the percentage of the parks area out of the total area of the zones. In 17 out of the 22 zones, the total area of public parks (including public libraries too) is documented to be

less than 1%, with most of them substantially less than that, such as Badr Al Jadida zone with 0.028% park area, Marj al-Hamam zone with 0.025%, Tareq zone with 0.08%, and Shafa Badran zone with 0.03%. Other areas, where the percentage of the park reaches almost 5% of the total area of the zone, include public man-made forests located along the airport road on the edges of the city, which form the main and most visited green recreational spaces for a high percentage of the citizens (Greater Amman Municipality, n.d.).

In 2015, the Center for the Study of the Built Environment, a research center focused in Amman, issued a publication titled “Amman’s Urban and Green Lungs”. The project aimed at documenting spaces that serve as the city’s “lungs” and that remain open and green within a city that has been suffering from rapid urban sprawl. The five documented open spaces include a Al-Hussein Youth City for sports, The Amman Citadel, the King Hussein Park, The Royal Court Compound, and the campus of University of Jordan. (CSBE, 2015). While these seem to be the most significant spaces in terms of total area and ecological contribution to the crowded city, there is a need to point out that most of those lungs are in fact not open for the use of the public; Al-Hussein Sports City is only accessible if membership or daily-use fees are paid. This also applies to the University of Jordan. The Royal Court Compound, which seems to contain the highest amount of trees and green area is actually a private compound for Jordan’s royal family and today serves for political and governmental events. Moreover, while the remaining two lungs, the Citadel and Al Hussein park are open to the public and do not require entry fees, they in fact do not count as “green spaces“. The Citadel contains historic stone ruins, and while Al-Hussein Park includes a significant amount of planted areas compared to other urban neighborhoods in the city, the majority of the accessible areas in the park include tiled areas, sports fields, an amphitheater, and other hardspace areas with no significant amount of trees or vegetation.

As for Jordan’s forests that are located in the north-west of the country, they definitely provide perfect spaces for family gatherings and public recreational activities. Privately owned forests in Jordan form less than 9% of the total forest cover, and while some publicly owned forests are protected and managed by a number of nature reserves and not freely open to the public, the rest of the forests remain open for the public’s use, and receive huge numbers of daily visitors especially during weekends. However, keeping in mind that these forests form less than 1% of the country’s area, and given their specific location, they are not sufficient to cover the need of citizens for public spaces.

These unfortunate facts about Amman’s public parks and green spaces and their poor conditions, along with the continuous increase in the population of Jordan and the shortage of entrance free facilities, have led citizens to look for any available open space for open-air recreational activities. As surprising as it sounds, sidewalks, green pockets along main busy highways, vehicular circles and other small areas along vehicular roads have turned into gathering spots for many locals. For example, children are often found swimming in water features installed on vehicular crossroads such as Dwar al Sha’b and Dwar al Waha, families park their cars along the airport road and have picnics under trees only a few meters away from the busy highway, and groups of youth often turn main-street sidewalks into seating areas (see Figures 5 and 6). While this is often looked at in an ironic and sarcastic way to describe the citizens’ improper behaviour (see Figure 7), it actually displays a serious and alarming basic need of the people: simply, the need for open space.



Figure 5 (left): citizens picnicking in empty land plot along vehiculat road. Retrieved from GlobeHoppers Blog

Figure 6 (middle): children swimming in water fountain on al-Waha roundabout. Retrieved from Jordan Collection Facebook page

Figure 7 (right): sarcastic comic about the use of vehicular spaces in Jordan. Retrieved from Abu Mahjoub Facebook page

#### 4.5. Jordan’s refugees: the Syrian population and Syrian refugee camps:

In general, when it comes to the issue of refugees, the Middle East stands out as an important region. Middle Eastern countries have received the highest number of refugees during the last two decades. According to the United Nations High Commissioner for Refugees (UNHCR) statistical reports, among the countries to receive the highest number of refugees by the end of 2015, Lebanon comes third, and Jordan comes sixth. And when it comes to the number of refugees per 1000 inhabitants in all countries, Lebanon comes first with 208.91 refugees per 1000 inhabitants, and Jordan comes second with 89.55. (UNHCR, 2015). In 2017, Jordan is listed as the top refugee hosting country, with more than 2.7 million received refugees. Non-Jordanians form around 30 percent of the total population. These include Palestinians, Syrians, Egyptians, Iraqis, Yemenis, and Libyans. Out of this 30%, almost half (14%) are Syrians who have arrived between 2007 and 2016 after fleeing war. (“Ten countries host half of the world’s refugees.” 2016).

According to statistics published by the United Nations, 80% of Syrian refugees live in Jordanian cities including Amman containing the highest number of Syrians, followed by Irbid, Mafraq, Balqa, Jerash and Ajloun. According to UNHCR publications, life for Syrian refugees who live outside refugee camps has become very tough. A 2015 survey found that 86% of them live below poverty line, which is actually forcing them to move back to camps. (UNHCR, 2015).

On the other hand, 20% of Syrian refugees live in camps that are located in the north of the country. The three official refugees camps are Zaatari camp (shown in Figure 8), Azraq camp, and Mrajeeb alFhoud camp. According to the 2017 factsheet report published by the UNHCR, the Zaatari camp, being the largest, covers an area of 5.3 square kilometers, making it Jordan's fourth biggest city. It is home for 79,559 Syrian refugees as of January 2017, and it contains residential caravans, temporary markets composed of kiosks, 11 schools, two hospitals, community centers providing psychological and physiological support and recreational facilities like sports centers and football fields, play areas, hospital, as well as administrative offices in a basecamp.(UNHCR, 2017).



Figure 8: al-Zaatari Syrian refugee camp. Retrieved from AlArabeyah

In an effort to make the residences in the camp more livable and fresh, refugees, along with Save the Children organization, have been adding some layers of green around the caravans by planting as much plants and crops as possible. Save the Children initiated a project that provides refugees with landscaping and gardening lessons with the aim of providing them with psychological support. According to Mohammad Abu Farah, the gardening teacher of Save the Children, gardening gave the children a sense of accomplishment and has helped changing them in a way that made new friends,

learned to work as teams, and established a sense of responsibility towards their land. (Thompson, 2014).

An interesting 2014 publication “The Secret Gardens of Syria’s Refugee Camps” displays the individual hopeful efforts of refugees living in Zaatari Camp to green their environment and provide a sustainable food source or simply add some colors to their lives. The article documents some interviews with some refugees who shared their perceptions towards their small gardens at the refugee camp. Among their statement are: “when we see the green color, we remember Syria.”, “when I’m gardening I’m keeping myself occupied so that I don’t get to feel frustrated or angry”, “it’s a change of scenery. This garden gives me hope.”, “if there was a garden we feel like we’re home and it reminds us of our country.”, “I wanted to create a space that made me one step closer to home.”, “when the plants bloom out of bare land, you feel like you accomplished something.”, “I made the garden so that we can start building just a bit of hope and happiness.”. (Elgot, 2014). Figure 9 shows some pictures of Syrian refugees in their gardens taken during interviews.



Figure 9: Syrian refugees engaging in planting activities at refugee camp. Retrieved from Huffington Post UK

Another publication “I am Syrian: Mohannad’s Garden”, tells the story of a Syrian refugee living in Zaatari Camp. According to Muhannad, the camp had no life. He then decided to use his passion for science and simply started planting any seeds he got his hands on, while using the desert soil and a testing ground. A few months later Muhannad came up with results of specific crops that can be planted, and is still working on ways to treat the soil with simple material in order to plant others. Today, his garden is a sensation in the camp and it has encourages other refugees to take part in the experiments. “It is common human nature to want to feel that you are useful, they say, you give a man fish you feed him for a day. You teach him how to fish you feed him for a lifetime. I think my garden stands as an example for this.” Mohannad comments. (Moghrabi, 2016).

As hopeful as these efforts sound, it is important to mention that these planting activities are limited to crops and flowering plants and shrubs, while planting and growing trees is not an option. Syrian refugees who live in camps are not allowed to plant trees in the camps. These regulations are justified by the need to prevent the camps from turning into permanent settlements. Planting and growing trees create a sense of belonging and attachment to land, which seems to be not encouraged by the Jordanian regulations regarding Syrian refugees. As surprising and eye-opening this sounds, it is rarely mentioned or taken into consideration in any publication. Online research about refugees and forests in the Arab world unfortunately only shows some publications about the negative impact of refugees on surrounding natural resources, which is simply a result of basic living needs. For example, a study carried out by the United Nations Development Program and United Nations Environmental Program in 2015 presents that the increase in the number of Syrian refugees in Jordan has negatively impacted the environment due to illegal logging for fuel wood, excessive collection of medicinal plants, agricultural practices, and others (UNEP & UNDP, 2015).

As for the 80% of Syrian refugees who live in Jordanian cities, while they do have the ability to access public forests, plant trees and crops freely, they do not equally get to benefit from this chance and to visit public greens areas and forests, as they live in poor marginalized neighborhoods where no significant green areas are found, do not have the space to plant anything, and do not have enough income to cover transportation costs to visit forests. Figure 10 displays some pictures of Syrian families and children who live in Amman and shows a glimpse of their living conditions.



Figure 10: pictures of Syrians in Amman. Retrieved from UNHCR, al-ghad and al-Sawsanah online newspapers

#### 4.6. Psychological conditions of Syrian refugees:

Some studies have focused on the psychological conditions of refugees who are living in camps. Exposure to war and its horrific events, loss of loved ones, relocation and exposure to new surroundings, and other consequences of war are known to cause serious depression, aggression, and

other psychiatric disorders. According to the UNHCR, a large number of Syrian refugees who travel to Jordan have been subject to or witnessed torture, murder, kidnappings, or sexual assault. Moreover, an assessment of psychological needs of Syrians in Jordan revealed fear, anger, lack of interest in life and hopelessness. UNHCR Health Unit in Jordan also reported that in 2014, UNHCR clinics received 10,911 cases of mental illness. 24% of these cases were reported to be severe emotional disorders (Al Hadid, 2016).

Another study that was carried out in 2015 to examine the post-traumatic stress disorders of Syrian refugees in Jordan concludes that Syrian refugees in Jordan do suffer from clear PTSDs and that they are in desperate needs of not only financial support but also psychological help. This study also sheds light on women as a focus group and shows that women refugees suffered from more effects of PTSDs than men. (Al-Shagran et al., 2015).

According to staff members of the organizations working with camp refugees, these psychological states have been easy to notice, even among children who do not usually express their feelings in words. For example, Save the Children Jordan has held art classes for refugee children that are facilitated by older refugees. According to Hassan Hijazi, a former Save the Children staff member, the outcomes of these classes are mainly drawings of war scenes or green trees. This projects the children's memories about the war that they had witnessed, as well as memories and needs of nicer hopeful places where nature and trees dominate war and desert (See Figure 11).



Figure 11: pictures of Syrian refugee children with their drawings. Retrieved from Save the Children

Unfortunately, while many studies cover the issue of post-traumatic stress disorders of refugees, treatment programs for such disorders have not yet reached a significant level, especially in developing countries like Jordan.

There is no doubt that the above mentioned facts about Jordan's forest threats, population trends, public spaces, and refugee conditions seem alarming and give an overall sense of negativity and threatening future visions. And while the issue of refugees in the Arab world, specifically in Jordan, may sound too complicated or too political to deal with, we cannot deny the urgent need to tackle it. Refugees are in most cases perceived as a burden. But what if this issue is tackled from a different perspective? If given the chance to look into the issue from a different - maybe humanitarian - point of view, refugees can be perceived as human resources, an asset, and an untapped labor force, whose skills can be used to reach a win-win situation to promote both their psychological rehabilitation and the management of Jordan's natural resources and green projects.

## **Chapter 5: Study results**

### **5.1. The importance of Jordan's public forests for citizens**

#### 5.1.1 Outcomes of interviews with forest managers:

More about the forests: Dibeen Natural Reserve covers an area of 8.5 square kilometers. It spreads over natural hills that are situated south of the famous Roman sites of Jerash and it ranges between 500 to 1000 meters above sea level in altitude. Dibeen Forest contains one of the last remaining natural Pine-Oak forests in the Middle East. It also includes some of the oldest Pistachio, Arbutus, and Olive trees in the region. Moreover, the forest hosts around 17 endangered animal species such as the red squirrels and grey wolves. In 2004, the forest was officially registered as a nature reserve and is managed by the Royal Society of Nature Conservation (RSCN), an independent national organization, but remained open to the public and has hosted many recreational activities and picnics.

Amman National Park is located along the Queen Alia International Airport highway, in the southern part of Amman. It is a re-forested area that covers almost 1.5 square kilometers. Here again, most of the vegetation consists of Aleppo Pine and oak trees and hosts a smaller number of wild animals such as foxes. The park is managed by the Greater Amman Municipality, and it hosts huge numbers of visitors and recreational activities. Figure 12 shows the location of both forests and their areas.

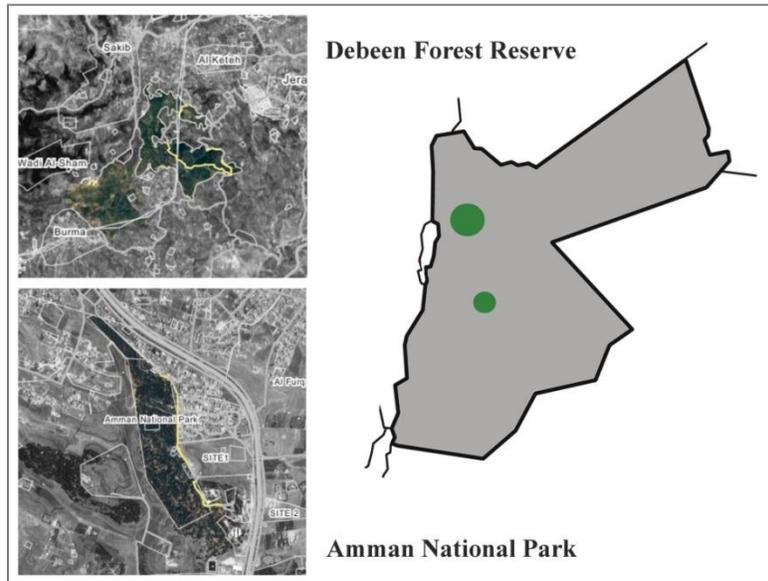


Figure 12: location of study sites and their areas

Number of visitors and visiting patterns: According to visitor analysis studies carried out by the RSCN, the average total number of visitors of Dibeem Reserve is 100,000 per year. And according to a short tourism survey, the main activities are recreational picnics and picnic related activities such as barbequing, group dancing and singing, and football games (see Figure13). The vast majorities of visits occur on Fridays; the survey included data gathering data about the number of car entries to the site during the summer season, and found that about 72% of cars visit on Fridays. This is followed by 8.7% of the cars on Saturdays, while the percentages drop during weekdays. Given this large number of visitors on Fridays, it has been noticed that visitors arrive earlier than other days of the week, which is a result of competition for suitable picnic spaces. The majority of visitors usually stay for a total 5-6 hours, according to the survey results.



Figure 13: picture of picnickers taken at Dibeem Forest Reserve. Retrieved from Turath architectural office

As for Amman National Park, despite its relatively small size, it receives huge numbers of visitors since it is located in the capital. The active visiting period is between April and September. According to information obtained from the management department of the park, the park receives the highest number of visitors among all other parks in Amman, in a way that makes it a very crowded area that receives more than expected capacities. Here as well, Fridays host the majority of the visitors; according to the management of the park, between 30,000 and 40,000 visitors are counted on Fridays. This data is obtained by counting the cars that enter the site, and multiplying the number of cars by 4 people, keeping in mind that many families arrive in trucks, minivans, or buses, which might cause the underestimation of the visitors' number on Fridays. As in the case in Dibe'en reserve, visitors arrive earlier on Fridays, in many cases, earlier than 9:00 am, in order to find a suitable picnicking spot among the huge numbers of visitors.

Presence of refugees and engagement activities: According to surveys carried out by the RSCN in Dibe'en, more than 95% of forest visitors are Jordanians. The vast majority of the visitors are Jordanians from the cities Amman, Jerash, Zarqa, and Irbid. According to interviews carried out with some of the visitors, Dibe'en forest is perceived as the closest and most popular natural site to these cities. 4% of vehicles that enter the site are from gulf countries (Saudi Arabia, UAE, or Kuwait). However, it was also mentioned that most of the visitors who reside in other countries (who use non-Jordanian cars) are actually Jordanians who work abroad and return to Jordan for summer holidays. No obvious presence of Syrian refugees has been noticed in the reserve. This might be explained by the fact that Syrian refugees in Jordan do not have Jordanian identification cards, and are therefore not allowed to obtain or drive vehicles. And since the largest chunk of Syrian refugees live in Amman, Dibe'en reserve is not easily reached by refugees. Moreover, no public transportation routes connect the reserve with other areas, which limits the accessibility to the forest by Syrian refugees.

As for the Amman National Park, given its location in the capital, some refugees and Syrian families enter the park as freely as Jordanian citizens, according to the managers. However, no significant percentage of refugee visitors has been noticed or documented. The same reason of obtaining a vehicle might be a reason. However, this does not seem to be a focus matter for the managers, thus no further information was provided about this matter.

When it comes to public events and community engagement activities, both forest management departments have put some efforts and organized activities that engage the local community. For

example, some efforts are carried out in Dibeen Reserve to promote the socio-economic statuses of the local community, to engage the citizens of the surrounding villages, and to provide job opportunities. This includes engaging women in programs and workshops that allow them to produce and sell natural handmade products and crafts. It also hosts school visits and ecotourism programs. Moreover, the management department of the Amman National Park has organized kite flying day for the surrounding neighborhoods, school trips and summer camps, some cultural festivals and parties, as well as tree planting activities for children with cancer, and others. When asked about activities to engage for Syrian refugees, it was pointed out that a church that borders the forest often carries out activities for refugees, but no actual activities have been organized or carried out in the forest.

Main challenges: Given these large numbers of visitors to both forests, and keeping in mind the low number of alternative recreational areas in Jordan, the main problem that both forests face is the human pressure on the land. This main problem is then linked to a number of other problems such as littering, forest degradation caused by the suppression of natural regeneration and illegal logging, fires, and others.

During interviews with both GAM and RSCN, littering came out as the most significant problem. Despite the efforts in solving this problem by giving out free plastic bags for leftovers, adding more garbage bins and signage, and organizing many campaigns and initiatives to clean the forests, picnic leftovers being left behind is causing huge problems at both forests. According to the manager, 4 to 5 tons of litter is collected by municipality's cleaning workers every Saturday (mornings after busy Fridays) from the Amman National Park. In other week days, around 2 tons of litter is collected. Managers believe that the lack of feeling of belonging is a cause of this attitude.

According to the management departments of both forests, another main cause for the misuse of the forest is the lack of environmental education and awareness. In a report published in 2004 by RSCN, "absence of environmental education programs" is added as a main challenge. In daily observation tours carried out by staff members in the Amman National Park, it has been noticed that the forest is taken simply as a space for picnics but individuals do not seem to have a sense of respect to nature.

Competition of space is also mentioned by forest managers. Considering the high number of visitors, the forests turn into crowded active areas where groups of people will have to compete for suitable picnicking spots. According to GAM, in some incidences, some individuals show up at dawn and

create borders with ropes around suitable picnic areas, simply because of the competition for a good space.

Moreover, according to the RSCN, the pressure on the forest land and its facilities means more maintenance, more management efforts, more staff members and more costs, which creates more pressure on the management department and its resources. Some surveys are distributed yearly to forest visitors, but these surveys only include questions about the level of satisfaction of forest services. No surveys are prepared to consider the personal perception about the forest, awareness about the forest's ecosystem, or willingness to engage with activities. Moreover, a recent project took place at the Dibeen Forest to move the recreational area from the historical native trees part of the reserve to another area that contains younger planted trees with the aim of conserving the old trees. This project is the only major project that has even taken part at the reserve and that tackles recreational needs. Turath, a private local architecture office, worked on the project and came up with pleasant concepts for the recreational sites. However, no surveys were carried out during the analysis phase to take into consideration opinions and needs of the visitors, who themselves are the most important stakeholders and main users.

Other challenges were also mentioned during interviews; among these are weak law enforcement, lack of activities to promote site appreciation, illegal collection of plants, and weak fire control programs.

#### 5.1.2. On-site observations:

In both study sites, observations were carried out to cross-check interviewees inputs and to document general issues mainly about the activities and the attitudes of visitors. No significant differences were observed between the two forests. The following points document some of the main relevant observations. Figure 14 shows some pictures taken during onsite observations.

- As pointed out by forest managers, it was noticed that the main activity carried out in the forests is picnicking, where mostly families gather under trees for barbeques or just lighting fires and sitting around them. Other activities were also associated with picnicking such as group dancing or playing football or other games.
- Other activities included walking, jogging, and cycling. However, jogging and cycling were carried out mostly by foreign non-Arab expats or young members from local cycling groups.

Walking and dog walking activities are noticed to be carried out by groups of women or elderly individuals. The variation of activities differ greatly according to different times of the day; walking, jogging, or cycling, are observed only during early mornings or evenings, at times when the forests are empty and more quiet.

- No community engagement activities or public events are observed in any of the data collection days. Forest visitors seem to be only users of the space and not seen engaging in any other activities.
- The general condition of the equipment and facilities that are offered in the forests is poor. For example, broken and very dirty litter bins are not maintained, many stone benches are broken, and restrooms are sometimes closed and are not very clean. No enough signage and guidelines signs are available.
- No significant interactions were observed between adult individuals of different groups or different families. However, interaction is clearly noticed among kids of different families, as they join each other for games, in some cases kids from more than 4 or 5 families end up playing as one big group.
- No attention is paid to the ecological aspects of the forests. Plants are not treated respectfully as in many cases seedlings are crushed by cars or by picnic equipment, swings are hung around young branches causing them to break, cars drive throughout the forest ruining the understory, and branches are cut while still green for fires. Younger children seem to enjoy nature more than adults. For example, many children were seen collecting stones, pine cones, and flowers, or going further into the forests following animal footprints.
- As pointed out by forest managers, littering is a major problem. Leftovers are seen everywhere after a busy day.



Figure 14: pictures taken during on-site observations showing conditions of forest facilities, littering, and users' activities

### 5.1.3. On-site questionnaires:

No significance difference in the answers was found between the two forests. Therefore, data was analyzed as one group. However, notes are added for each forest separately when applicable and when results vary between the two forests.

### Demographics:

Gender: Out of the 247 participants who filled in questionnaires, 44% are females, and 56% are males.

Age: the majority of participants are between 25 and 50 years old; 29% are between 25 and 25 years old, 32% are between 35 and 50, 15.5% are between 50 and 65, 16% are between 15 and 25, and 5% are above 65 years old. 2.5% (6 people all females) did not answer this question.

Nationality: the vast majority of participants are Jordanians. Some added their nationality as Palestinians. However, most of Palestinians who live in Jordanian cities have Jordanian identity cards and therefore have Jordanian nationalities. Because of this, Jordanian and Palestinian nationalities were combined as one category. 83% are Jordanians or Jordanians with Palestinian origins. Only 8% of the people were Syrians. Among the 247, 4 are Iraqis, 4 Egyptians, 10 Americans, one French, one Swedish, and one Philipino.

Duration of residency in Jordan: the majority (71%) are born in Jordan. 5% have lived in Jordan for 10 – 15 years, 7% for 15 years and more, 5.5% for 5 years or less, 7% between 5 and 10 years, 3% were tourists and it was there first time in Jordan. 4 people (1.5%) did not answer this question. Most of the

people who have been living in Jordan for less than 5 years are foreigners coming from western countries to work in Jordan.

Monthly income: 6% of the participants did not answer this question since it is considered to be a sensitive question in Jordan. 27% are unemployed, 82% of whom are women, some are individuals older than 65 years, and a few are students. Taking the unemployed individuals and the participants who did not answer this question out of the total number of participants, 62% of the participants gain less than 350 Jordanian Dinars a month; where 47% gain between 250 – 350 Dinars and 15% gain less than 250. 16% gain between 350 - 450, 13% gain more than 550, and 8% gain between 450 – 550. Half (50%) of the participants who gain more than 550 JODs a month are young non-Jordanian expats who have been working in Jordan for less than 5 years. (Note: 1 JOD is equal to 1.4 USD).

#### Use of the forest:

Number of hours spent per visit: Around half (48%) the people who filled in questionnaires mentioned that they usually spend more than 4 hours in the forest. 23% of them usually stay between 3 – 4 hours and 11% usually spend between 2 – 3 hours. 16% usually stay between 1 – 2 hours. It is worth mentioning that when this question was analyzed according to the activities that are carried out, all of the 16% who spend 1 – 2 hours at the forest come for sports such as cycling, walking, dog walking, or for research and education. 1 person (dog walker) spends less than one hour and 4 people were tourists having their first trip in the forest so the question was not applicable in this case.

How often they visit: The visiting patterns showed high variations, with the majority (36%) visiting once every two weeks. 18% visit once every 2 – 3 weeks, 10% visit twice a week or more, 14% visit once a week, 5% visit once a month. The rest 18% added other answers including less than once a month and “when my parents are free”, “when we have a car”, “when my mum visits”, “when I have time”, “whenever I am free”, “during vacation”, “when we have school trips”, or it was their first time visiting the forest. Again, the activity is very much connected to the visit frequency. For example, joggers, football players, cyclists, and walkers, visit once a week or more. While picnickers visit less. No significant difference is observed in the visiting patterns in different forests.

With whom: More than half (57%) visit the forests with their families. 22% visit with their families and friends, 4% visit alone, and 17% visit with friends. Here again, compared to the activities, people who

come for picnics usually come with families, while people who visit with friends are cyclists, walkers, architectural students coming for work...etc. “Friends” include colleagues, neighbors, or other members of sports clubs.

Main activity: as expected, the main activity at the forest of 73% of the participants is picnicking. Picnicking also includes sitting, relaxation, singing, or dancing so they were combined as one category. 5% of the participants come for cycling, 3% for jogging, and 7% for walking. The rest 12% of the visitors engage in different activities including sports such as 2 people visit to practice yoga, 4 people for football games, 4 people for frisbie games, and 4 people for dog walking. Other activities also include photography, research in plant field, collecting branches, and collecting and watching insects. One person mentioned that he visits for bird hunting, which is illegal. 4 people visit for work, including 3 architects and 1 person distributing brochures. 7 people only visited for tourism, since it was their first time in Jordan and at the forest.

Most of the participants who visit the forest for activities other than picnicking were seen in the Amman National Park and not in Dibeen Reeserve. For example, 10 out of the 14 cyclists are in Amman. Walkers, yoga trainers, Joggers, Frisbie and football players are also in Amman. Dibeen, on the other hand attracts more picnickers.

#### Motivation to visit the forest:

Main driver: Participants were asked to choose the main driver behind their regular visits to the forest. The given drivers are physical health (sports, improve body health, get clean air...etc), psychological health (clear my mind, relax, break from work stress, to be inspired...etc), or both psychological and physical health drivers. The majority of the participants (52%) mostly the participants coming for picnics, stated that the main driver is psychological. 16% of participants chose physical drivers, and those are mainly participants who came for walking, cycling, jogging, and other sports. 31% chose both physical and psychological drivers. 3 out of the total participants added other drivers such as money (bird hunting and branch collection), and research.

Reasons for visiting the forest: Participants were asked to choose 3 out of a set of reasons behind their visits to the forest. “To be around nature and wildlife” is the reason that was mentioned by the majority of participants. The following graph (Figure 15) shows the listed reasons and the number of times they

were mentioned (by how many participants).

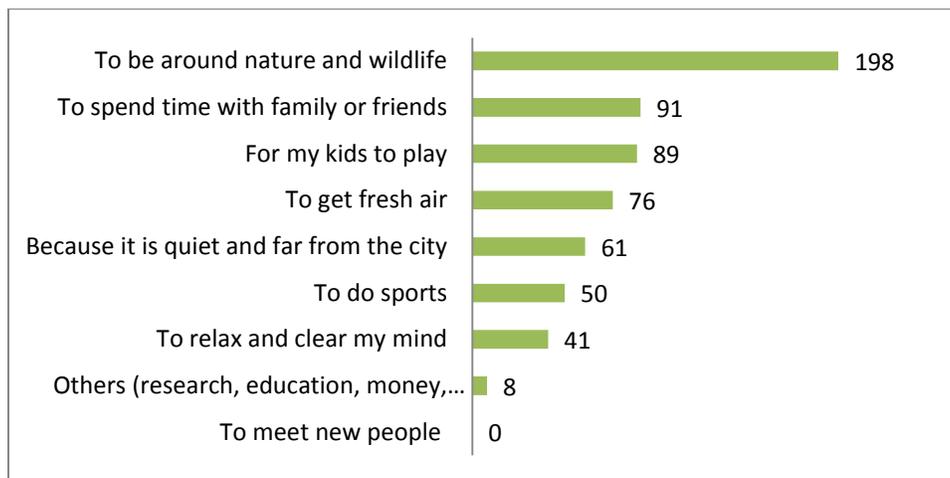


Figure 15: graph showing visitors' main drivers for forest visits

Number of kilometers traveled to reach the forest: the answers of this question are analyzed separately for each forest. As for Dibeen Reserve, 58% out of participants stated that they traveled more than 80 kilometers. Most probably, those are citizens of Amman. This is followed by 20% participants traveling between 40 – 60 km, 8% between 60 – 80 km, 2% between 20 – 40 km, 5% between 10 – 20 km, 3% between 5 – 10 km, and 4% less than 5 kilometers. As for visitors of the Amman National Park, 55% traveled between 10 – 20 km which might be the distance from the park to the center of Amman. 23% traveled between 5 – 10 km, 2% between 10 – 20 km, and 14% traveled less than 5 kilometers. As for the latest, most of them are walkers and dog walkers who live around the park and come for morning or evening walks. 6% of the participants added “I don’t know” or did not answer this question.

If an entrance fee is required: Participants were asked if they would still visit the forest if an entrance fee is required. For convenience issues, an example of 1 Jordanian Dinar (1.4 USD) per adult individuals is mentioned in the question. 69% of the participants stated that they would not visit anymore. 23% stated that they would still visit, and 20% stated that they would still visit sometimes but less frequently. 3 participants added other answers such as “depends on my parents” and “I don’t know”. The high percentage of participants answering with “no” can be explained by the fact that there are alternative public forests nearby where entry fees are not required. Those other forests are open to the public but are not formally managed, do not have any facilities or equipment, and might not be as safe as the forests included in the study since they do not have any security offices or guards.

### Perception about the forest and its effect:

What makes the place special: Participants were asked to rank 3 choices according to what they think makes the forest a special place compared to other places. The 3 options are that it is a public space (free entry), that is a wide open space compared to the city, and that it is a natural green area (simply a forest). The last characteristic – natural area and simply a forest – was ranked as the most important feature; 58% of the ranking answers included this feature as the top important reason. 32% of the participants added this feature as the second most important feature of the area. This appreciation of nature is also observed in other questions of the questionnaires, showing that most of the visitors choose this area over other public spaces simply because it is a forest. The second high ranked feature is the fact that it is a public space with no entry fees; 28% of participants added this feature as the most important one, and 45% added it as the second most important. As for the fact that the forest proves a wide open space compared to the city, 14% of the participants ranked it as the most important, most of who are cyclists, walkers, and other individuals who come for sports.

Effects of the forest visit: In general, participants show high levels of agreement about the positive effects of forest visits on their physical and psychological health, as the majority of them agree and strongly agree that forest visits reduce their negative energy, help them relax, and improves their physical health. These inputs by forest visitors correspond positively with international studies that are documented throughout literature and that prove the positive effects of forest visits on citizen's wellbeing, such as the Green Public Health study carried out in Vienna (Cervinka et al., 2014). It also projects effects that are linked to the idea of "Forest Stimuli" that was earlier presented in a Korean study to project the role of nature in psychological wellbeing (Shin et al., 2009). Although no clinical studies have been carried out in Jordan to provide medical evidences about these effects, the inputs of the survey participants project positive perceptions about the role of forests in enhancing their health and welling.

When it comes to the role of forests in enhancing the feeling of belonging and the feeling of attachment to the forests, a higher level of agreement is observed. This might be explained by the fact that Jordanian citizens are in general much attached to their land and to the country and what it offers. Among these questions and their answers, high levels of agreements and strong agreements are observed when asked if participants feel equal to everyone else in the forests. Although the main

visitors of public forests in Jordan are families with lower income, different social groups and individuals from different background and different social classes are found in the forest.

As for the role of forests in socializing and making new friendships and connections, a high number of participants answered with “neutral”. This was also documented during on-site observations, where no significant interactions were noticed between different groups, but many new connections were made by kids from different families who gather to play. This issue is also documented in literature where some publications argue if the provision of public space is enough to guarantee social integration. For example, although the 2010 publication by Forest Research proves that greener neighborhood have stronger social ties (Forest Research, 2010.), another 2010 publication argues that provision of green parks does not necessarily imply social integration (Ravenscroft et al., 2010). This later argument is documented by the survey results and on-site observations and suggests that the simple provision of the study sites does not clearly projects social integration potentials. Figure 16 presents graphs showing detailed information about the questions and the percentages of each answer.

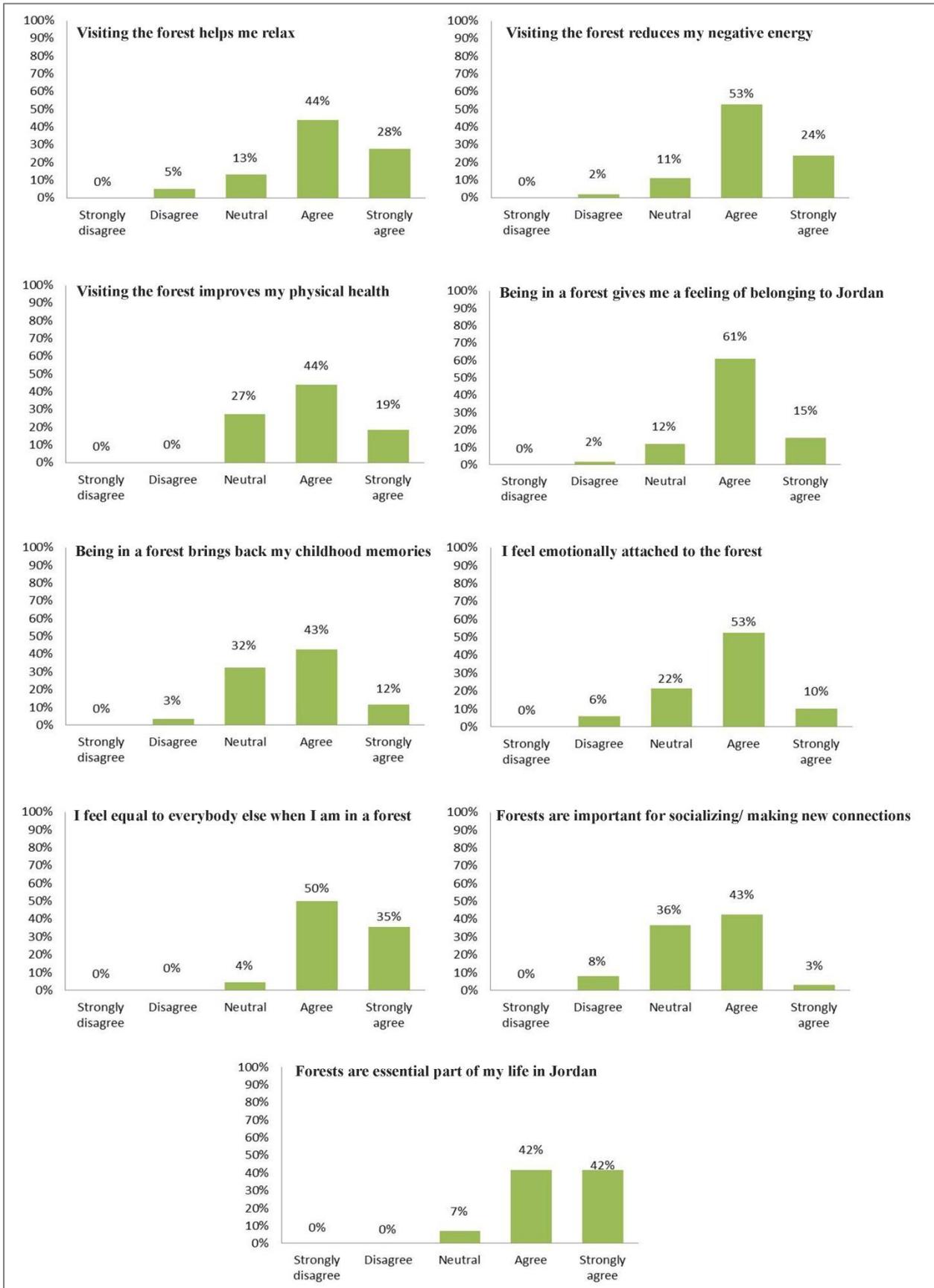


Figure 16: graphs showing results of questions about effects of forests on forest users

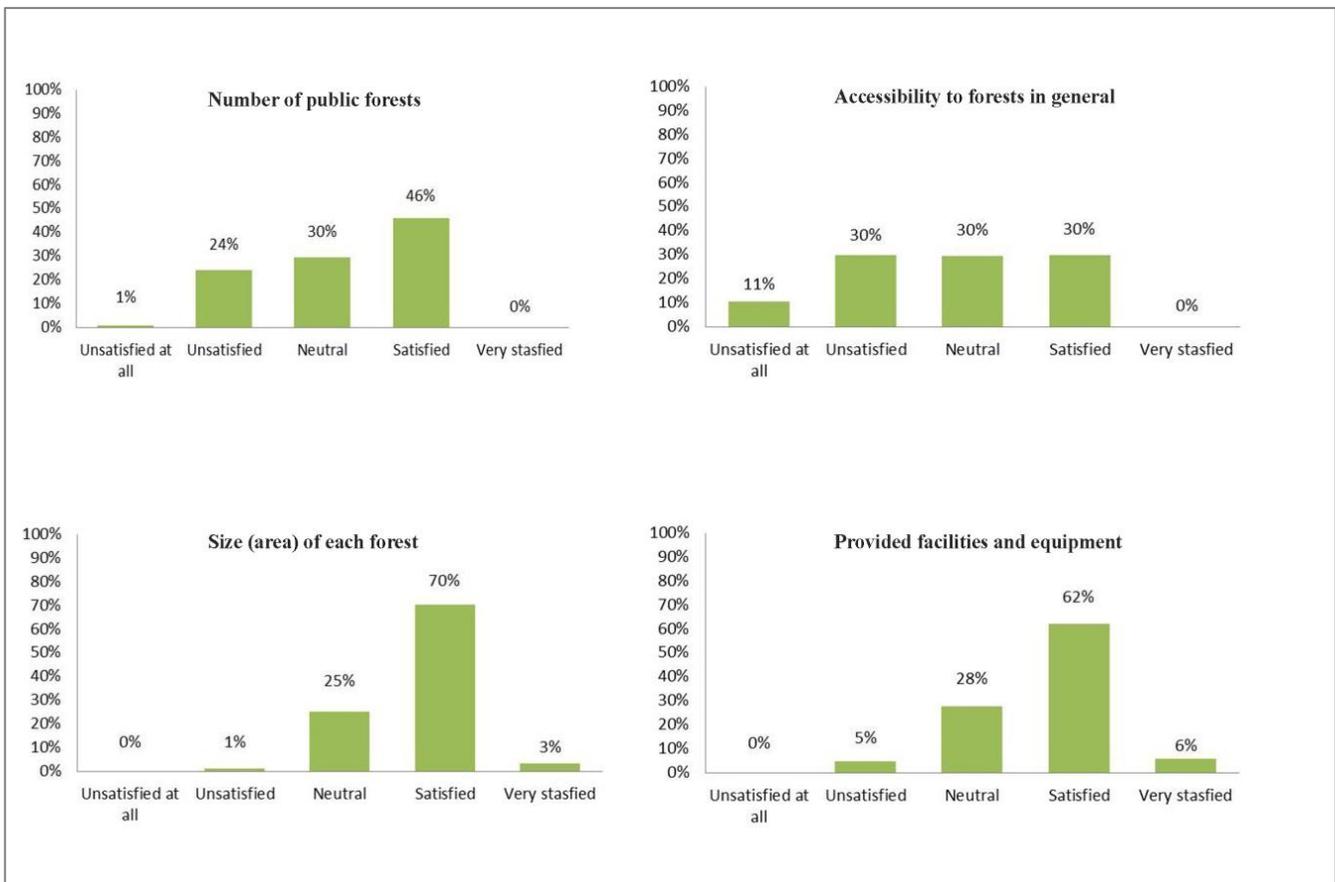
Possible barriers: while around half of the participants stated that there are no barriers or did not answer this question, the other half added some barriers that sometimes prevent them from visiting the forests. Those barriers can be grouped in 8 categories: cost of trip, transportation, lack of time, security and safety reasons, kids responsibilities, competition for space, cleanliness, and others. For example, 33 participants mentioned that sometimes they do not have a car available for the trip, that the forest is too far for them, or that there is no public transportation to the forest. 14 participants mentioned the cost of the fuel or the cost of the picnic food. 9 participants added the lack of time as a possible barrier, 5 participants mentioned that their kids are too active and need a lot of attention in a forest, 7 people mentioned that security and safety reasons might be barriers. For example very early mornings there is no security around, in late evenings there is not enough lighting, and cliffs might be dangerous to kids. 29 participants mentioned the fact that the forest might be too crowded or that they would not always find suitable picnic spots. 10 people mentioned the issue of poor cleanliness and a lot of litter. Other answers included fear of police because of work permit issues or no valid driving license or “depends on my husband’s opinion”. The most dominant barriers (transportation, trip cost, and crowdedness) that were pointed out by participants have not been noticed in the literature review and there does not seem to be any documented similar barriers found in other studies. This might be explained by the fact that documented studies are focused on the western world, where most countries have more advanced transportation systems, higher minimum income, and more public green areas.

General feeling after visiting the forest: Only around 60% of the participants answered this question. While most answers showed positive effects, 5% mentioned that they feel tired, exhausted, or stressed. All of those participants who mentioned such feelings are females, who also added comments saying that their kids are too active or that it is tiring to arrange for such a long trip. Other comments included positive feelings. For example, relaxed / comfortable: 24%, Fresh / recharged: 26%, happy / content / thankful: 19%, peaceful: 10%, feeling of belonging to Jordan: 7%, inspired: 3%, healthy: 6%.

#### Perception about Jordan’s forests in general:

Satisfaction about the forests’ characteristics and aspects: Compared to other countries, Jordan’s forests are very few, relatively small, and are not easily accessed or reached. However, surprisingly, a general level of satisfaction is stated by the participants. This satisfaction is mainly about the number of total forests, accessibility to public forests, size of each forest, cleanliness of forests, equipment provided, and location of the forests and their proximity to cities.

While on-site observations show poor conditions of provided equipment such as vandalized or dirty litter bins, lack of signage and lack or unpleasant conditions of restroom, 62% of the participants stated that they are satisfied, 28% are neutral, and only 5% are unsatisfied. Moreover, forest cleanliness and littering problems are described as major problems by forest managers. However, 45% of the participants stated that they are satisfied with cleanliness levels of Jordan’s forests and 26% are neutral. Another surprising finding is that participants seem to appreciate nature and the conservation of forests’ flora and fauna as 46% of them stated that they are satisfied by this and 53% stated that they are very satisfied. However, interviews with managers and on-site observation show clear levels of abuse towards nature and the forest understory. This might be explained by low levels of environmental awareness and education; citizens appreciate the natural settings, but do contribute to the conservation. As for public events and family activities that are organized in forests, participants show a low level of satisfaction, mentioning that no public activities – that they know about – are ever organized or that some activities are carried out but are organized with certain groups and are not inclusive to all people. Figure 17 shows graphs of results of each sub-section of this question.



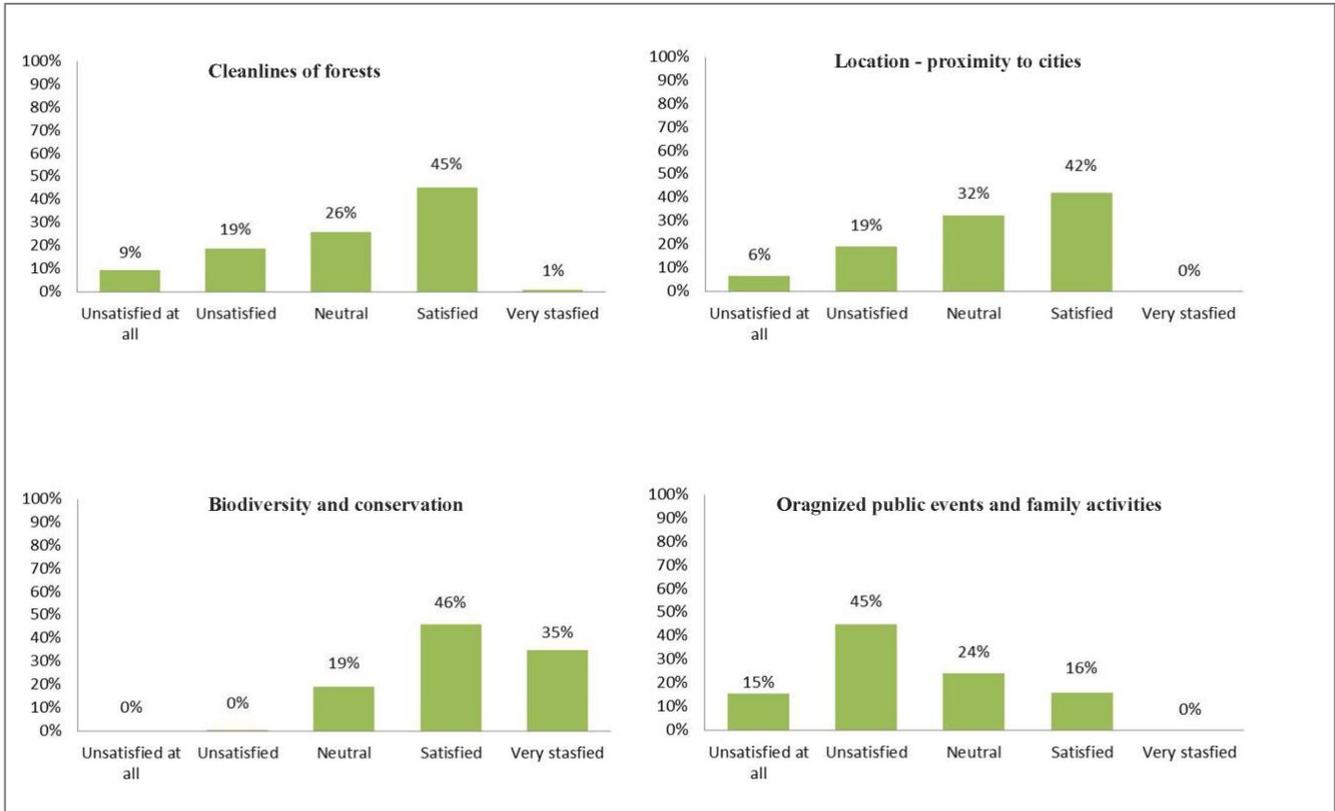


Figure 17: graphs showing results of citizens' perceptions about Jordan's forests

General comments and suggestions: Participants were also asked to add any comments or suggestions. The provided comments included both negative and positive perspectives about the forests. Here again, comments also tackle some issues that are already mentioned in the report such as cost, transportation, cleanliness, and others. The following figure displays some of the most relevant comments.

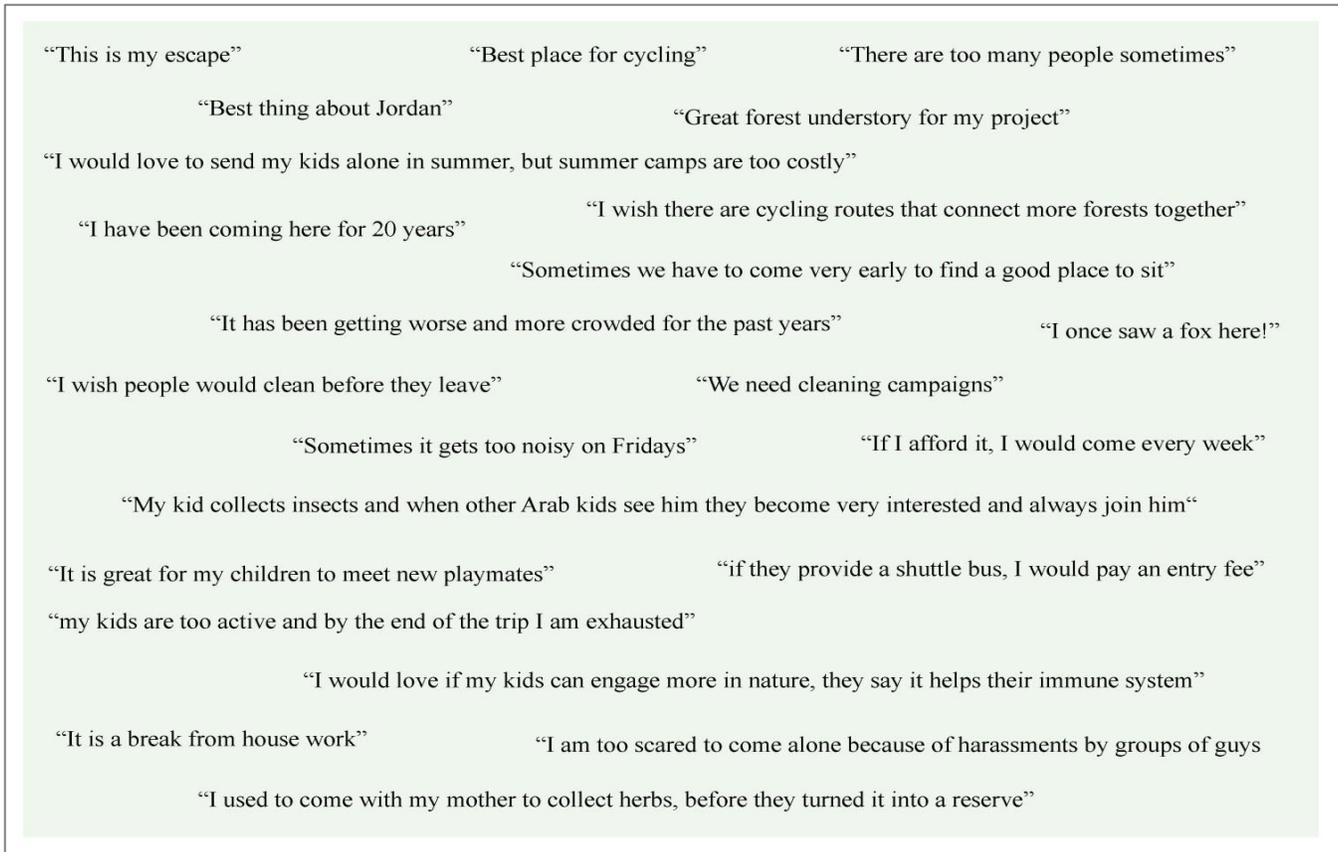


Figure 18: some of the comments mentioned by survey participants

#### 5.1.4. General notes:

**Gender:** The participants’ gender seems to have clear effects on the answers. This is also seen in other surveys, such as surveys about cycling and public transportation in Jordan (CSBE, 2014), and is related to cultural and social issues in Jordan. For example, 82% of the unemployed participants are females. Moreover, when it comes to the activities, most of the female participants engage in picnicking and do not engage in sports as well. This is also noticed during on-site observations where sometimes male individuals engage in football or other sports while women remain seated. Moreover, the relationship of kids and female participants is obvious. For example, most of the participants who chose “for my kids to play” as one reason why they visit are females and many female participants added “active kids” as possible barriers or “exhausted because of my kids” as a general feeling after the forest visit. This shows that the responsibility of kids is mainly for women. Also, 6 participants did not answer the question about age, and all of them are females. This is also noticed in other studies where the question of age is for some level a sensitive question when it comes to females. Another point that is worth mentioning is that one lady mentioned the verbal harassments that are made by groups of guys during

early mornings when the forest is empty. This also projects an important cultural issue against women in Jordan.

Social/financial classes: The two public forests seem to be perfect places for all social classes in the community. Also, 50% of the participants agreed that they feel equal to everybody else in the forest and 32% strongly agreed with that too. However, if one reads between the lines, the difference in perceptions and opinions between higher and lower social classes can be observed. For example, participants who visit the forest for cycling, dog walking, jogging, or walking, all have monthly incomes above 350 JODs, while most of the picnickers gain less. This can be connected to two key issues: first is the ability of higher income individuals to get good education in private school and enough awareness of the need of sports for physical health. Second is that higher income groups usually have alternative private places for recreation such as resorts or clubs, while lower income families cannot afford membership fees or entry fees to private resorts. Moreover, when asked if participants would still visit if entry fees are required, out of 23 participants who answered with a “yes”, 10 gain more than 550 JODs a month, 5 gain between 450 and 550, 3 gain between 350 and 450, only 2 gain less than 350 and only 2 are unemployed. This can also be observed in the possible barriers questions, where the majority of the participants who mentioned transportation issues as possible barriers that might prevent them from visiting the forests gain less than 350 JODs.

General satisfaction: Although research outcomes and the general perception about Jordan’s forests are not too positive and show many challenges and needs, the participants in general seem to be satisfied with most aspects of forests. The only aspect where a clear level of dissatisfaction is noticed is the engagement in public events and activities that are organized in forests. The general level of satisfaction is also noticed in other surveys that were carried out in Jordan. For example, a survey about the public transportation system was carried out in 2014 by the Center for the Study of the Built Environment. And although compared to other countries, public transportation systems in Jordan are very poor, participants seemed generally satisfied. This might be explained by the fact that many citizens are not exposed to the western world and do not have any better images to compare with (CSBE, 2014).

Environmental education: One of the problems that forest managers pointed out is lack of environmental education or the lack of nature appreciation. This was also noticed during on-site observations where many visitors do not pay attention to the natural elements such as trees and forest

understory and in many cases end up abusing and misusing them. However, when asked about nature appreciation, the vast majority of participants showed high levels of appreciation and interest in the biodiversity and the natural settings. For example, the fact that the space is a natural area was given more weight than the fact that it is a public space or a wide-open space compared to the city. This shows that although citizens appreciate Jordan's forests and their ecosystems, they do not have good knowledge of the "dos" and don'ts" and do not have awareness about the right treatment of natural elements. Here again, this can be connected on the issue of social classes in Jordan, where lower income families are forced to enroll their kids in public school, where they receive no education about the environment and the need to conserve it. On the other hand, higher income families are able to enroll their kids in private schools where international educational subjects are adopted to include more environmental and social subjects.

## **5.2. Syrian refugees in Jordan: living conditions, access to green spaces, social integration**

### General information and residency status:

8 out of the 15 interviewees are males and 7 are female. Their ages range between 23 and 38 years old, and they are all married and have between 2 to 5 children. All of the interviewees are refugees who have lived in refugee camps for durations ranging between 7 months and 2 years and now live in Jordanian cities including Amman, Zarqa, Mafraq or Irbid. It is normally possible to leave the camp legally through a bailing out decision that is made by the governmental Syrian Refugees Affairs Directorate. However, many refugees leave the refugee camps illegally with the hope of having better living conditions and more freedom in cities. Information about legality of the stay of the interviewees in cities is not documented by these interviews since it is considered to be very sensitive.

### Work permits, access to labor market, and economic status:

As per governmental regulations, Syrian refugees who leave the camps through a bailing out decision can apply for a work permit to work in Jordanian cities. However, according to the interviewees, applying for work permits is not an easy process and requires a lot of time and scanning. Applying for a work permit will also require the provision of many documents, carrying out many visits, and transportation cost, which many of Syrian families cannot afford. If a work permit is issued, Syrian refugees still do not have free access to the entire labor market and there are only a limited number of fields in which they are allowed to work.

As expected, gender differences appeared when it comes to jobs; 6 out of 8 male interviewees stated that they do have jobs including working in restaurants, in construction (tiling and building), in meat shops or supermarkets, in gardening, or in collecting recyclable waste. However, 3 out of the 6 male interviewees who have jobs stated that their jobs are not stable, and that they are only called for work when needed or when a friend needs an extra hand. As for female interviewees, only one interviewee stated that she has a job as a cleaner, which is also not a stable one. Another interviewee stated that she has recently started preparing Syrian food at home which she sells to neighbors sometimes. As can be expected, cultural issues force women to stay at home and care for their children, while men leave the house either to work or to look for jobs. “I would like to have a job and meet new people in Jordan, but I need to stay home with my children” one interviewee stated. Moreover, when asked about their perception about the access to labor market, male interviewees stated that there are available jobs but as refugees they need to have connections to be able to find a job. They also pointed out that usually Jordanian employers take advantage of the fact that they are Syrian refugees and offer very low payments compared to other Jordanian employees. “Because they know we desperately need it” one interviewee commented. Another issue that was pointed out is that working illegally seems to get them higher income, in a way that they can get more than one job at the same time or part time jobs at different places. On the other hand, all female interviewees stated that it is not easy for women to get a job, first because of societal perception to women, and because of the fact that their children cannot be left alone at home. Comments about this issues included “Imagine what people would say if I would work in a supermarket!”

With regards to women’s access to labor market, one interviewee commented: “Can you believe it is easier for children to get a job than women?” This lead to an eye-opening discussion: child labor. When asked if their kids have jobs, 8 out of the 15 interviewees said that their sons work to help provide income. While interviewees seemed to be careful and preservative in their general discussion, they seemed comfortable talking about this issue and stated that their sons, between 12 and 17 years old, help their fathers by working in part time jobs like construction, in minimarkets or in collecting recyclables. Here again, the issue of gender appears clearly, as only male children are sent to work while female children stay home with their mothers. Figure 19 shows some pictures of Syrian children seen working in Jordan.



Figure 19: pictures of Syrian children working in Amman. Retrieved from Irin and al-Ayam online newspapers

As for monthly incomes of the interviewed families, discussions show that a Syrian refugee family would either has no monthly income at all and rely on relatives' financial support, have unstable incomes that depend on unstable jobs, or have low incomes that do not cover basic living expenses. The majority of the interviewees stated that their incomes are unstable and range between 90 and 160 JODs (Note: 1 JOD is equal to 1.4 USD). This issue has been pointed out by other studies and publications about Syrian refugees in Jordan that have stated that most of the Syrian refugees in Jordan live under the poverty line.

#### Social status, recreational activities, and community engagement:

When asked about the general social status in the Jordanian community, interviewees pointed out that they mainly spend time either with their families or with neighbors. For most of them, not being able to cover transportation costs, to move around the city and not having jobs forces them to stay in a small social circle, which mainly consists of neighbors and relatives. It is worth mentioning that a general perception of satisfaction about the current social status appears; interviewees pointed out that although they have not spent much time in Jordan, they do feel welcome and comfortable with their social circles. However, this seems to be focused on a small scale of the neighborhood. For example, three interviewees pointed out that they sometimes feel out of place when they go out to other areas in cities, and that they feel less comfortable when they are forced to deal with new people. "We are still refugees and we will always be," one interviewee commented.

The families' recreational activities also seem to be only within the circle of family and neighbors. All of the interviewed refugees live in crowded neighborhoods, do not own cars, and cannot afford transportation costs or costs for recreational facilities. Therefore, as pointed out by interviewees,

recreational activities are limited to spending time with neighbors, walking around the neighborhood, gathering for small neighborhood dinners...etc. Moreover, when it comes to public events, interviewees mentioned that there are no significant events or community activities that they were ever engaged in. This is either because they have never heard of any events, because of transportation, or because of hesitation to mingle with the society because of the perception to them to being refugees. Some of the male interviewees did point out a few activities like public celebrations for Independence Day or watching football games, while female interviewees again seem to be less involved.

#### Children's education and activities:

Within the discussion of recreational activities and family activities, the issue of children's living conditions is highlighted again. Surprisingly, only one of the interviewed families had children who attend school. When provided with a bailing out permission from the camp, children can be admitted to public schools in Jordan. However, because those schools do not have the capacity to receive high numbers of students, two separate sessions are held at schools, regular morning (daytime) sessions for Jordanian students, and afternoon sessions for Syrian students. As this seems to be good efforts done by the government, it still creates a barrier to the integration of Syrian children within the Jordanian society, as one interviewee mentioned. For the rest of the families, children do not attend school, and either work or stay at home. As for other activities of children, the gender issue appears again. For boys, if they do not work to help with income, their activities include playing in neighborhood streets or in empty land lots or only spending time with other neighborhood kids around the neighborhood. A female interviewee pointed out that under such circumstances, she prefers her son to work and gain some professional experience, rather than spending time with "bad company" in the street. Female children on the other hand, do not engage in any activities outside the family circle and mainly stay home and help their mothers.

#### Access to public parks and forests:

Interviewees were asked if there are any public parks in their neighborhoods. Those who live in Amman mentioned that the neighborhood parks do not actually count as parks, and that they are either empty land plots, unmanaged parks that are not safe for children and are unequipped, and that if there are empty spaces for children they do not actually count as "green" parks and do not have enough trees or vegetation. Other interviewees pointed out that Amman has many parks but they are far and could not be easily reached without a car. Interviewees who live in other cities could not think of any significant area that counts as a public park and also that if there are spaces where some boys play but

they cannot be considered as parks. Regarding visiting public forests, most of the interviewees have visited public forests during their residency in the city, such as Amman National Park, other green areas along the airport road, or forests in Ajloun. However, interviewees pointed out that visiting public forests is not a regular activity for them because in many cases they rely on neighbors or friends to take them along because of transportation cost and not owning a car. All of the participants agree on the fact that visiting forests is very important for them and that they would love to be able to have easier access to forests and green spaces. While discussing this topic, most of the interviewees expressed memories of their home country and discussed regular visits to forests, rivers, and mountains during their stay in Syria.

#### Engagement in greening activities, skills, and willingness to participate:

Interviewees were asked if they have taken part in any greening or planting activities during their residency in Jordan. 7 out of the 15 interviewees stated that they or their children have participated in planting activities in the refugee camps before moving to the city. For example, 3 interviewees mentioned that they used to plant some vegetables in front of their caravans at the camps. 4 others stated that their children have participated in greening activities or landscaping classes that were organized at the camp. On the other hand, interviewees pointed out that their living conditions in the city do not allow them to have any planting activities since they do not have space for it and cannot afford the cost of planting material. None of the participants have heard of any public greening initiatives or relevant community activities.

All of the interviewees believe that they do have enough skills and physical potential to take part in planting activities in Jordan. Here again, memories about their lifestyle in their home country appear. For some of them, working in farming and with land is a usual lifestyle that, if not themselves, their parents or grandparents carried out in Syria. Others believe that land-human relationships come natural and that “working with nature needs only patience and trust that your effort will be paid back.” Interestingly, no difference between male and female participants or cultural conservative issues regarding women’s profession is observed here, as all female participants also stated that they do have the needed physical potential and skills to take part in such activities.

On the other hand, when asked if they would be willing to take part in future greening activities, gender differences appear again; male interviewees all mentioned that they would be willing to take part in such activities only if it gets them income. Although they seemed to be interested in such activities,

providing income for the family and looking for paid jobs is a priority. Meanwhile, all female interviewees mentioned that they would be willing to take part in such activities even if no income is provided, but had some barriers like their children or transportation. This was explained by the fact that they spend their days at home, and that getting engaged in such activities would allow them to leave the house, meet new people, and get some fresh air. Both male and female interviewees pointed out that they would like their children to get involved in planting activities. Their comments included “Nature is good for the soul, my kid needs it”, “I would love for my daughter to get involved in such activities because she stays at home all day and night”, and “Even if he does not get any money, I prefer for my son to do something useful and gain professional experience instead of wasting his time around the block”.

Throughout this discussion, interviewees pointed out some interesting ideas for potential greening projects that they could be involved in. The suggested ideas vary in scale, and while some ideas sound humble and simple, others sound more bold and ambitious. Interviewees pointed out that spatial potential for such projects can be bare land areas that serve as connections between cities, smaller available land plots within neighborhoods, or even smaller spaces in crowded neighborhoods such as roofs. For example, two interviewees mentioned that planting on their buildings’ roofs can be an option since there are not many other empty spaces around the neighborhood. Others suggested adding more edible plants and trees for shade in existing parks that are unmaintained, planting fruit trees or other edible plants in empty land plots, creating or taking part in planting in and managing private lands that are abandoned or unmanaged, or taking part in projects to create more forests between cities such as Irbed and Mafraq, or Amman and Azraq. Specifically, female interviewees showed excitement about such activities and pointed out that if material cost and transportation is covered, planting and managing available land or creating new green areas would be a nice activity to carry out with their neighbors and with their children and that it would help them socially, economically, physically and psychologically. However, while many of the interviewees stated that although they have had similar greening ideas in mind, they do not know how much they can be involved given the fact that they are refugees and that those activities require not only financial support but also social acceptance.

### **5.3. The Spatial potential for possible engagement projects**

The study generally displays a need for more green areas, more management activities for existing green areas, and more efforts to engage Syrian refugees as well as Jordanian citizens in greening activities. Here, some questions are raised: is there a spatial potential for such projects? On what scale

should this potential be looked into? And if there is a spatial potential, are there any ongoing projects that can take possibly take Syrian refugees into consideration?

Inspired by comments that were raised during interviews with Syrian refugees, the spatial potential can be presented on four different spatial scales (See Figure 20): A large scale that takes Jordan as a whole and considers landscapes that serve as connections between Jordanian cities, a smaller scale that zooms in to one city and its suburbs and considers its significant open spaces or "urban lungs", another smaller scale that zooms in to one neighborhood and considers its existing small public parks, and a small scale that zooms to crowded neighborhoods and considers the only available spaces within in: buildings' rooftops.



Figure 20: diagrams showing four different spatial scales for potential greening projects

### Green connections between cities:

Taking Jordan as a whole and considering a large scale, spatial potential is very wide. However, considering climatic issues and limitations in human and financial resources, the eastern and south-eastern parts of the country are not easy to deal with. However, if we focus on the northern part of the country, available landscapes that serve as connections between cities can be considered as potential spaces.

Very limited information can be found about the history of Jordan's forests. However, the degradation state of natural areas as well as areas that were afforested during the 1950s is clearly pointed out throughout literature. The northern part of Jordan, specifically Jarash, Irbed, Ajloun and surrounding cities were dominated by Mediterranean forests that were degraded due to urbanism, logging, fires, or overgrazing. Random casual interviews with elderly Jordanian individuals that were carried out throughout this study project memories about rich forests in the north of Jordan that disappeared in time. For example, a Jordanian individual in his 80s who was born in Irbed mentioned that Irbed was

surrounded by large forests, where many wild animals including tigers and hyenas could be found. Another individual stated that many of today's residential areas consisted of forest land that citizens viewed as unsuitable for residential investments. Today, however, those areas that connect northern cities consist of patches of fragmented forests (see Figure 21). Along main highways that connect cities, some of those forests patches can be noticed, and are officially known as Roadside plantations. Those plantations are often managed by the governmental forestry department and efforts are often put on replanting and conserving them. However, they still face quick levels of degradation and further fragmentation. Other areas that can be found in Jordan and can serve as potential spaces are what are known as bare forest lands. Those are pieces of land that are governmentally registered as forest land but are bare of forest cover due to over grazing and harvesting, soil erosion, and rough topography. ("Forestry in Jordan", 2014.)

In other cases, areas that are located between highly urbanized cities usually contain private farm lands. In many cases, those farms are abandoned or unmanaged because of lack of resources. For example, when checking aerial maps of al Zaatari camp for Syrian refugees in the North of Jordan, a number of green spaces around the camp can be noticed (see Figure 22). According to Save the Children staff members, some of these are private lands where olive trees and other plants are grown, but are today abandoned by the owners because of the inability to manage it. Those private farms between the camp and other cities and can be potential spaces where refugees and other community members can work and have mutual benefits.

A humble yet interesting example can be mentioned in this context, a part of a highway between Amman and Irbed that connects al Baqa'a camp for Palestinian refugees and Amman. Al Baq'a camp is the largest Palestinian refugee camp that was established in the 1968. Today, the camp has turned into a permanent residential area and includes all facilities, and is home to around 100,000 Palestinians. The highway that connects the Baqa'a area to Amman today consists of a plant nurseries and a popular area to where many final consumers and retailers go to buy plants (see Figure 23). Those small scale plant nurseries provide income to the local community, create interesting green spots along the highway, and serve as an active social hub that attracts many individuals and groups from all social classes.

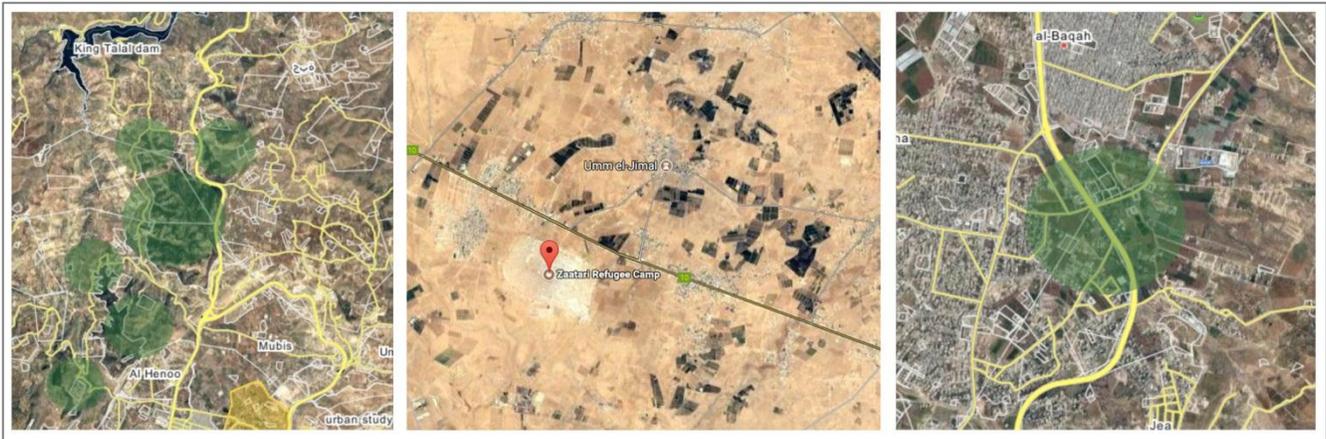


Figure 21: map showing fragmented forest areas between Amman and Jerash. Retrieved from Wikimapia

Figure 22: map showing farm lands around al Zaatari refugee camp. Retrieved from Wikimapia

Figure 23: map showing road with plant nurseries between Amman and al-Baqaa camp. Retrieved from Wikimapia

### Cities' green lungs:

If we zoom in to a smaller scale and consider one city and its suburbs, urban forests are the most significant spaces that actually count as urban lungs. However, those lungs are very limited in number and as pointed out through the study, they face high pressure and degradation threats. If we take Amman as an example, small urban forests that are located at the edges of the city are very significant both environmentally as socially. The high number of users of those forests in and around Amman creates a lot of pressure to the natural resources that the forests offer and cause the degradation of the natural space in general. To tackle this problem, some efforts are carried out by the government and by some private initiatives and reforestation activities often take place in many cities.

In this context, Green Amman 2020 stands out as a pioneering initiative. This initiative, which was started by an individual with personal interests in environmental conservation, has gained the support of the government and was officially adopted as a governmental organization in 2015. The main objective of the organization is increasing the green cover in Amman and creating more green areas. It also aims at conserving the city's natural areas, spreading environmental awareness, and working on the progress towards environmental sustainability (Green Amman 2020, 2015). Greening activities of Green Amman 2020 have been successful and have included reforestation, cleaning forests and public spaces, recycling activities, greening of sidewalks and public parks, as well as other environmental activities in Amman and other cities as well (See Figure 24). A recent plan of the organization also aims at creating a new urban forest on a piece of public land under the initiative "a million seedling".

The activities of this initiative prove that even within one city, there is a high spatial potential for greening activities that can benefit both the city and its people. Although the vision of Green Amman 2020 seems to be focused on environmental and esthetic aspects of the city, it does include social aims and community engagement objectives. However, although these initiative activities rely on the participation of volunteers, no significant efforts have been so far carried out to engage minorities such as Syrian refugees, and no significant outreach programs have been carried out to engage community member who are often marginalized such as low income families or youth from public schools. Beside Green Amman 2020, other governmental efforts are also often carried out for reforestation and replanting burnt forest areas throughout the country, but do not invite community members to participate.



Figure 24: pictures of some activities done by Green Amman 2020. Retrieved from Green Amman 2020 Facebook page

Another pioneering organization in this field is the Arab Group for the Protection of Nature, a non-governmental organization that was established in 2003 and aims at the protection of the environment and natural resources in Arab countries against hazards like war impacts and occupation. While the social role of other environmental projects seems to be absent, the APN aims at enhancing the role of civil society organizations, strengthening the capacities of the Arab community, and mobilizing efforts of the civil society in order to contribute to the needs of the Arab environment. Large scale tree planting and greening projects of APN have targeted vulnerable groups such as small-holder farmers in Jordan who have fallen victims to poor economic and political conditions and Palestinians whose farm lands and orchards have been demolished by Israeli settlements. However, here again, no attention is given to Syrian refugees as a focus group and no activities to engage them in any of the activities have taken place so far.

### Existing public parks:

Considering a smaller scale and zooming in further into neighborhoods, although limited in number, public parks already exist in urban areas in Jordan. In Amman, as mentioned in section 4.4 of this report, 166 urban parks are distributed among 22 urban zones of the city. In most cases, those parks are unmanaged and abandoned and do not actually count as safe parks for the community. Moreover, most of the available parks cannot be considered as green areas and do not contain any significant plant cover, mainly because of lack of proper management and upkeep. Those parks can easily serve as potential spaces for greening activities that can be carried out not only by Syrian refugees but by the community as a whole. Having these parks as available empty spaces that need management and having community members who have the need and the willingness to manage them, the first idea that comes to mind is community gardens. If given the opportunity to carry out such activities, community members including refugees can highly benefit from such spaces, in terms of self-sufficiency and social integration. Moreover, having community members as human resources who are willing to manage those parks would also have positive environmental impacts on Jordanian cities as such activities will help create more natural areas within highly urbanized neighborhoods.

An interesting example that is worth mentioning in this context is Nour al Barakah Garden project. Nour al Barakah is a non-profit Jordanian organization that aims at offering new opportunities to individual with intellectual disabilities. In order to help these individuals intermingle with peers in a safe recreational environment and develop their work experiences and social skills, the organization carries out planting activities in Princess Iman Public Park, located in al Rabyeh area in Amman. The park, that earlier consisted of an under-managed fenced area, is now managed by members of the organization, and has turned into a successful well managed active space and an urban farming spot, where individuals with intellectual needs plant their own organic crops and manage the garden. The garden also includes spaces for recycling and composting, and a multi-use building has been built using recyclable material. A farmers' market is carried out weekly to sell the organic products that are grown by the members. Other organizations and community members are also invited to rent kiosks and sell their products, and this park is today considered to be a significant active social spot for all community members (see Figure 25).



Figure 25: pictures of Nour al Barakah park. Retrieved from Nour al Barakah Facebook page

Although special needs individuals are in many cases marginalized and left out of community activities in Jordan, this project has helped them on many levels, psychologically, socially, and physically (Nour al Barakah, 2009). This humble yet very successful project can be taken as a model that can be replicated in other neighborhood and this idea can be adopted by other organizations to integrate other minorities in the community, among whom, Syrian refugees.

#### Roof farming:

An even smaller scale can be considered for potential greening activities. This scale zooms in to highly urbanized areas and crowded neighborhoods and considers the only available open spaces: buildings' rooftops. Rooftop farming projects have been successful in many countries worldwide and established in neighborhoods where open space for plantations is limited. They have proven to play an important role in reducing pollution, community self-sufficiency, and social integration. Interviews with refugees show that for many, social circles consist of neighbors, and that daily activities are carried out mainly with neighbors or family members and within the borders of the neighborhood. Moreover, interviews also show that women and young girls have no chance to engage in many activities outside of the neighborhood boundaries. Within this context, in many Jordanian neighborhoods where open space is limited, rooftops can serve as planting spaces that would benefit community members. If not of privately owned buildings, rooftops of public buildings such as public libraries, public schools, religious buildings, or social centers that do exist in all neighborhoods can serve as potential spaces for such projects.

The concept of green roofs has been developing in a slow pace in Jordan during the past decade. Initiatives for green roofs and roof farming have been initiated by Jordanian individuals who have innovation and environmental interests including young entrepreneurs, university students, or even

retired individuals. Small scale green roofs projects have taken place in some cities like Jarash, Amman, and Al-Salt and have been proven to be successful even with low cost and minimum management efforts (see Figure 26). Other formal projects have been initiated as well. For example, the Greater Amman Municipality has worked on greening the roofs of a number of buildings in al Qal'a area in Amman. According to individuals who have taken part or initiated such projects, in most cases, buildings' rooftops turn into abandoned spaces or storage areas, and can easily provide the needed space for planting activities that would help enhance the environment, beautify the city, and empower the community (NAIS Jordan, 2016). They also agree that Jordan has a high potential for green roofs projects as the climate is suitable, enough sunlight is available throughout the year, and many plants can be grown without consuming high amounts of water. Moreover, they believe that those projects do not require high budgets or extensive management efforts, and simple basic material can be used and still guarantee their success.



Figure 26: pictures of a roof garden project carried out by a Jordanian individual. Retrieved from Nais Jordan

Although roof farming or green roofs initiatives have been taking place in Jordan, they have not yet received significant attention and support, and they are still very limited in number. Also, while organizations and individuals who are working in these initiatives do believe that those activities are of high importance for community integration and empowerment and for enhancing women's role in the Jordanian society, little or no attention is given to Syrian refugees as they are not yet taken into consideration as a focus group in such projects, despite the great potential of such projects to provide them with income, psychological support, and help integrate them within the rest of the society.

## **Chapter 6: Conclusions, policy recommendations and further research recommendations**

### Conclusions:

The study proves that Jordan's public forests are of high importance for citizens. With a specific focus on low income families in Jordan, public forests are appreciated for providing both natural getaways and public spaces for family activities. Forest users show high levels of awareness about the positive role of public forests in their wellbeing and social life and assurance that those few public forests are considered to be main recreational hubs and essential elements in their social lives and general wellbeing. The study also stresses on the fact that Jordan's few forests are under pressure and that the high number of visitors to these forests is a concern to the natural ecosystems, and that there is a clear demand for more green spaces to serve both the public's recreational activities and the conservation of Jordan's natural resources.

Lack of proper management and low maintenance of public spaces is highlighted as an issue which not only public forests but also smaller urban parks are facing. Moreover, a very low level of community engagement is highlighted throughout the study; citizens seem to be only considered as users but are almost never engaged in the management or decision making when it comes to public forests or other public green areas. In addition to that, absence of environmental awareness is observed in the attitudes of forest users and pointed out by forest managers. This is observed not only in children but in adults as well in a way that although the natural setting is highly appreciated, very low attention is paid by visitors for the conservation of natural elements of the forests.

When it comes to Syrian refugees, expectedly, interviews show the harsh living condition that they are facing both from financial and social aspects. It is noticed that life in refugee camps seems to be surprisingly easier than life in cities. Although freedom might be limited in refugee camps, and although they are located in harsher contexts, life quality in cities does not seem to be any better financially or socially. For many public and private organizations, refugees who live in refugee camps are a focus group that needs financial, educational, medical, and social support. However, when it comes to Syrian refugees who live in cities, less attention is given. Although Syrian refugees who live in cities can have free access to public forests and other green spaces, they are not main users and do not get to frequently visit those forests, mainly because of their residence in poor marginalized neighborhoods and the inability to cover transportation cost. As for the integration of Syrian refugees with the Jordanian community, no significant efforts are carried out and no significant engagement

activities for Syrian refugees in public events are carried out. As for engagement in greening projects, although there are efforts to engage refugees who live in camps in planting and landscaping activities - even if limited to crops - , this is not at all provided to refugees who live in cities.

Throughout the study, among both Jordanian citizens and Syrian refugees, women are highlighted as a focus group that needs to be taken as a priority for potential future engagement efforts since in many cases they seem to be left out of public activities, labor market, and other social events. Moreover, among the Syrian community who live in Jordanian cities, children also come out as a focus group that faces many alarming issues such as child labor and absence of education, and that also needs to be considered a priority in engagement projects.

The study also suggests that Jordan does have a spatial potential for possible future greening projects and that many private and public initiatives do have ongoing greening activities but do not yet take Syrian refugees into consideration, and that no significant attention is given to the role of these projects in community integration and social development. Depending on resources and the scope of work of current initiatives, the spatial potential for greening projects is presented in the study on four different spatial scales that range from large scale forestation projects to smaller scale community gardens or roof farming activities.

#### Policy recommendations:

Preliminary solutions for these issues can be tackled from governmental aspects, where simple policy adjustments can stimulate significant results, and eventually, solutions. For example, transportation was pointed out as a main barrier that prevents both Jordanian citizens and Syrian refugees from visiting public forests, in a way that public forests are today not part of any public transportation routes. For the past few years, the Jordanian public transportation system and related reforms have been receiving high levels of attention from public and private organizations. Taking the issues pointed out in this study into consideration, a simple solution would be including main public forests in Jordan and other significant public spaces as nodes of the public transportation network. This would facilitate the access to these spaces by citizens and refugees, thus, would increase positive impacts on public health and wellbeing.

Another issue that was pointed out by both forests users and Syrian refugees is the fact that they never hear about any public events if they are carried out, which is a reason why they are almost never

involved in any activities. In this context, policy recommendations include intensifying outreach programs and diversifying the outreach channels, so that if public events are carried out, all social groups in Jordan are reached for and invited. Outreach can be carried out simply by local television, newspapers, social media channels, schools, religious facilities...etc. Another outreach approach is to reach out for students in public schools or to incorporate greening activities in public schools educational content. Many private schools in Jordan have community service requirements in their agendas, where students are required to take part in voluntary public social or environmental activities. However, although very much needed, this idea is not yet considered in public schools which students from low income families attend. Simple educational reforms to add similar requirements in public educational agendas can have positive impacts on the youth.

While the issue of gender limitations that is highlighted throughout the study is related to cultural issues in Jordan, it can also be tackled by some policy reforms that can be initiated on governmental levels. For example, the study shows that women are more marginalized than men, more hesitant to engage in public projects, and have less access to the labor market. Although there are some organizations that aim at the empowerment of women in Jordan, there are no significant governmental initiatives that invite women to take part in the entire labor market. Governmental jobs can be provided for women in many fields such as forest guarding, gas stations, farming...etc. and can help break gender stereotypes and other cultural barriers against women in Jordan.

#### Research recommendations:

Further research is recommended to take women and children as focus groups for future related surveys and interviews, and to further explore the spatial potential on each of the four scales through obtaining maps and carrying out in depth spatial scanning of the areas. Future research is also recommended to look into budget demands and the financial needs of potential future projects on each of the four scales. Moreover, further efforts can be carried out to reach out for organizations and to suggest possible collaborations between public and private institutions that might have different interests but can collaborate for mutual benefits and for creating a brighter future for Jordan and for its people from all nationalities.

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## **Appendix 1: Questionnaire: Importance of Jordan's public forests for citizens' wellbeing**

This questionnaire aims at studying the importance of public forests for citizens in Jordan. It is designed to analyze this importance from the perspective of forest users and to obtain information on their use, motivation, perceptions about the forests and the possible impacts of the forests on their wellbeing.

This questionnaire is part of a master's thesis carried out at the University of Padova, Italy. Filled questionnaires will remain completely anonymous and the collected data will only be used for research purpose and will not be used for any commercial purposes by other entities.

Date: ----- Time: ----- Forest: -----

### **1: Use of the forest:**

1.1. How often do you visit this forest in warm seasons (Spring and summer)?

- Twice a week or more       once a week       once every two weeks  
 once a month       Other -----

1.2. Most frequently, whom do you come with?

- Alone       Friends or colleagues       family  
 both family & friends       Other -----

1.3. How many hours do you usually spend at the forest per visit?

- < 1       1 – 2       2 – 3       3 – 4       more than 4

1.4. What are the main activities that you carry out in the forest?

- Walking       Jogging       Cycling       Picnicking       Other: -----

### **2: Motivation for forest visits:**

2.1. Which of the following is the main driver for your visit to the forest?

- Physical health (Sports, healthy fresh air...etc)
- Psychological or emotional health (to clear your mind and relax, to think quietly, to be inspired, to take a break from work stress...etc)
- Both Physical and psychological

2.2. What brings you to the forest today? (Please choose 3 of the following)

- To spend time with family or friends
- To relax and clear my mind
- To get fresh air
- Because it is quiet and far from the city
- To be around nature and wildlife
- For my kids to play
- To do sports
- To meet new people
- Others -----

2.3. How many kilometers did you travel to reach this forest?

- less than 5 km
- 5 – 10 km
- 10 – 20 km
- 20 – 40 km
- 40 – 60 km
- 60 – 80 km
- more than 80 km

2.4. If the forest has an entrance fee (1 JOD per person), would you still visit?

- Yes
- No

- Yes but less frequently
- Other -----

**3: Perception about the forest:**

3.1 Please rank the following characteristics according to what you think make this area special for you to visit?

- That is it a public space (free entry)
- That is a wide open space compared to the city
- That is it a natural green area (simply a forest)

3.2. How strongly do you agree or disagree with the following statements:

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Visiting the forest helps me relax					
Visiting the forest reduces my negative energy in general (anxiety, exhaustion, depression, aggression)					
Visiting the forest improves my physical health					
Being in a forest gives me a feeling of belonging					

to Jordan					
Being in a forest brings back my childhood memories					
I feel emotionally attached to the forest					
I feel equal to everybody else when I am in a forest					
Forests are important for socializing and making new connections/friendships					
Forests are essential part of my life in Jordan					

3.3. During warm seasons, are there any barriers that might prevent you from visiting the forest? If yes, what are they?

3.4. Can you describe your general feelings after a typical visit to the forest?

**4: Perception about Jordan's Forests in general:**

4.1. What is your level of satisfaction about forests in Jordan in general?

Questions	Unsatisfied at all	unsatisfied	Neutral	Satisfied	Very satisfied
Number of public (entrance free forests)					
Accessibility to forests in general					
Size (area) of forests					
Facilities and equipment offered at forests (benches, garbage bins, toilets...etc)					
Cleanliness of forests					
Location of forests (proximity to cities)					
Biodiversity and conservation of fauna and flora					
Events and family activities organized at forests					

4.2. Do you have any other comments or suggestions that you would like to share?

**5: Personal information:**

5.1. Gender:  Male  Female

5.2. Age:  15 – 25 years  25 – 35 years  35 – 50 years  
 50 – 65 years  65 years or above

5.3. Nationality:  Jordanian  Palestinian  Syrian  Other: -----

5.4. Duration of residency in Jordan

Born here  < 5 years  5 – 10 years  10 – 15 years  
 > 15 years  here for tourism

5.5. Monthly income (in Jordanian Dinars):

< 250

250 – 350

350 – 450

450 – 550

> 550

## **Appendix 2: Questions for interviews with Syrian refugees**

### **1. Duration of residency in camp, cities, legality of stay**

- 1.1. For how long did you stay in the camp?
- 1.2. In which city do you live now?
- 1.3. For how long have you been staying in the city?
- 1.4. How did you leave the camp?

### **2. Work permits, access to labor market, economic status**

- 2.1. Do you have a job? If yes, what is it? If no, why?
- 2.2. Do you have a work permit? If yes, how easy was it to get it, if no, why not?
- 2.3. Does your wife, children have jobs? If yes, in what?
- 2.4. How do you generally describe the accessibility to the labor market?
- 2.5. What is your family's monthly income?

### **3. Social status and engagement with the Jordanian community**

- 3.1. How do you generally describe your social status (friends, neighbors, family)?
- 3.2. Do you usually spend time with other Syrian families or Jordanian families?
- 3.3. How do you feel is the perception of the surrounding Jordanian community to you and your family?
- 3.4. Are there any activities that help you engage with the surrounding community?

### **4. Children: Education and other activities**

- 4.1. How many children do you have?
- 4.2. How old are they?
- 4.3. Do they go to school or get any other form of education?
- 4.4. What activities do they engage in?

### **5. Family activities and recreation, engagement in public events**

- 5.1. What activities does your family carry out for recreation?
- 5.2. Have you or any of your family members taken part in public events?

### **6. Access to public parks and forests**

- 6.1. Are there any public parks or green spaces in your neighborhood?
- 6.2. Do you or your family members visit public parks or forests? If yes, where, if no, why not?
- 6.3. In your perception, are those spaces important or not much?

### **7. Engagement in greening activities, skills, and willingness to participate**

- 7.1. Have you or any of your family members taken part in any planting activities in Jordan? If yes, where?
- 7.2. Would you be willing to participate in farming, greening, planting activities?
- 7.3. Do you think you have the needed skills to do so?
- 7.4. What do you think can be possible activities or projects to take part in?

### **8. Do you have other comments or suggestions you would like to add?**